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JAMES B. HUNTER, M. D.

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MEDICINE AND THE COLLATERAL SCIENCES.

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Original Communications.

Art. I.—*The Extraction of Cataract within the Lenticular Capsule.*

By George Reuling, M. D., Surgeon to the Maryland Eye and Ear Infirmary, Baltimore, Md.

It is the highest aim of cataract operation to render the pupil perfectly clear, entirely unobstructed by any fragment of the capsule or cortical substance. This condition, however, is hardly obtained by the different methods of extraction known as the linear, the modified linear, the flap operation or the discission, etc., since all these methods only aim at the extraction of the lenticular substance without removing the enveloping capsule.

The removal of the opaque crystalline lens, therefore, within its uninjured capsule must be regarded as the most sanguine result of a cataract operation.

The desire of accomplishing so perfect a result has already agitated the minds of several of our oldest ophthalmic surgeons. Their methods, however, were so crude, and their results obtained so rarely satisfactory, that it had to be abandoned.

How this method of operating was gradually developed may be seen from the following concise historical synopsis:

Sharp and Richter, independently of each other, and at about the same time (1773), were the first who performed it, without, however, describing their method. Beer followed in 1779. He proceeded by introducing a needle into the lens after the flap had been made, and then making several rotatory motions therewith in order to disjoin the lenticular system from its connections, and to extract it.

Moorenheim, in 1781, advised that external digital pressure should be exerted after the corneal incision had been made in order to ascertain whether the lens would not appear in its capsule.

In 1845 Christian, in 1857 Sperino, in 1865 Wecker, operated in the following manner: After the flap had been constituted, they simply pressed upon the wound-margin, in order to cause rupture of the zonula Zinnii, and consequent detachment of the posterior capsule from its adhesion; Alexander Pagenstecher, of Wiesbaden, perfected the operation greatly, and gave its proper indications.

We scarcely need to rehearse the ordinary mode of Graefe's modified linear incision, the operation is so well known by every oculist, and has rendered his name immortal.

One of the chief causes of an insufficient, and occasionally an unfavorable, result after this operation, however, consists in the lenticulo-capsular fragments, which remain in the eye. In this respect, it is indeed less the quantity which gives rise to the danger, but rather the quality of these remnants. Their presence may prevent the union of the lips of the incision, or they may push the iris forward and thus cause a prolapse. Even if this does not take place, an iritis may be caused, or their fragments may lead to secondary cataract (Arlt, "Operationslehre," Handb. Graefe-Saemisch, 3), with or without synechia. Iritis, however, produced either by direct injury during the operation, as traction or pressure, or—as is most commonly the case—by the traumatic influence of lenticulo-capsular fragments, is apt to cause a great number of dangerous conditions. Posterior synechia, pupillary occlusion, or even panophthalmitis may thereby be called forth.

That the excision of a broad piece of iris acts in a measure as a prophylactic is undoubted. The second stage of the operation, as first recommended and practiced by Moorenheim (that is, the iridectomy), has certainly saved many eyes from destruction. It will be shown, however, in the following pages, that even after the largest iridectomy the presence in the eye of, more especially, the capsular fragments is a predisposing cause to inflammation of the iris and its very dangerous succedanea.

Even if there were no danger of ensuing iritis from the presence of fragments of the capsule in the eye, the result can never be as perfect from an optical point of view as if the lens with its uninjured capsule were removed together.

"If we were possessed of a means," says Arlt, "safely to remove the lens *in toto* (in other words with its capsule), we would record less losses and by far a lesser number of unsatisfactory results." It is my purpose to direct attention to such a means, and base my statements on a large number of cases operated by me according to this method during the last ten years.

Prior to proceeding therewith, I shall review the anatomical relation existing between the lens and the surrounding parts, for thereupon depends the *rationale* of the method.

The only *organic* connection of the lens is that with the hyaloid membrane; however, it is in close and intimate connection with the ciliary region, and the zonula Zinnii constitutes the band of union. The capsule, which incloses the lens on all sides, is consequently a continuous membrane, although for the sake of description it has been divided into an anterior and posterior capsule. The posterior capsule is quite firmly attached to the hyaloid fossa, and this portion of the vitreous (that is, the anterior part) is adherent to the ciliary body and the pars ciliaris retinæ. To remove the lens in its capsule, therefore, it would be necessary to loosen its margin from the connection to the zonula, and then exert external pressure in order to promote its escape; or to accomplish this by some other means, as by the introduction of an instrument between the hyaloid fossa and the posterior capsule.

This mechanical intrusion would perhaps lead to the rupture of the hyaloid with consequent loss of more or less vitreous or the probable rupture of the capsule, providing the conditions in the eye were perfectly normal, and the anatomical relations existing between the lens and the neighboring parts were not altered.

In a large percentage of senile cataracts certain pathological changes do take place, however, which modify these anatomical relations to a great extent, and which render the dangers of a mechanical intrusion between the lens-capsule and the hyaloid almost *nil.*

In the first place, there are changes affecting the zonula itself; then, there are changes which befall the lens and its capsule; and, lastly, those which happen to the anterior part of the eyeball.

The following changes in structure take place in the zonula Zinnii: Its fibers, ordinarily strong, become atrophic, and the result is a disconnection between it and the lens-capsule, thus favoring the extraction of the entire lenticular system.

The capsule itself, under certain conditions, increases in strength, but loses in volume; or the lens substance may change its consistence, as in Morgagnian cataract; in either case the consequence is that the connection existing between the hyaloid fossa, the lens, and the zonula Zinnii is loosened.

I have said that changes may also take place in the anterior part of the bulb. By this I mean there may be morbid alterations going on favorable to the detachment of the posterior capsule from its connection, dependent upon differences in tension between the anterior and posterior chambers (H. Pagenstecher, "Operat. d. grauen Staars in geschlossener Capsel"), as in iritis and irido-cyclitis, anterior and posterior synechia, etc.

In cases of repeated inflammatory exacerbations, and consequent alterations in intra-ocular tensions, the canal of Petit is widened, the fibers of the zonula atrophy, and the result is that the lens becomes but loosely attached to the hyaloid fossa, or, in some cases, entirely disconnected therefrom.

The same condition results when anterior synechiæ have existed for a long time; the plastic exudation thrown out by repeated exacerbations may pass into the canal of Petit, and, widening the same, the zonula becomes atrophic, and the capsule is loosened in the fossa.

Since, moreover, it is now known that the glaucomatous process, in the great majority of cases, is due to an inflammatory condition of the iris with consequent hypersecretion, produced by whatsoever cause (generally by an irritation of the ciliary nerves), it follows from what has now been said, that, in all cases of cataracts occurring in secondary glaucomatous eyes, the lens in its capsule is loosened from its connection with the fossa and the zonula Zinnii.

Our operation would, therefore, find its indications in all cataracts, where the union between the capsule and the zonula on the one hand, and the hyaloid fossa on the other, is severed in whole or in part, no matter by what morbid condition this may be produced.

The operation may therefore be performed in the case of a cataract which owes its origin to a disease of the iris (iritis), or of the choroid (choroiditis). The reasons why it is indicated under these conditions have been mentioned above.

Another indication is offered in all cases of *cataracta luxata*, for in these exists either a total, or at all events partial, rupture of the zonula.

Furthermore: all cataracts which are slow in maturing, or which even, as happens at times, may never be perfectly matured. The volume of the lenticular body usually becomes lessened in direct proportion to the slowness of maturation. Such cataracts can easily be loosened from their attachment, and are therefore very favorable to this mode of operation. It is of interest to mention that they occur most frequently in myopic eyes.

The operation may also be performed in the case of Morgagnian cataracts, although it would seem that the capsule would be very apt to rupture. This, however, is not the fact (*v.* H. Pagenstecher, *op. cit.*). It is presumed that such cataracts in their development always lead to atrophy of the zonula and to a consequent loosening or detachment of the lens-capsule from the fossa.

When a cataract is due to so-called choroiditis latens or retinal disease, both of which so often lead to the exudation of lymph on the posterior capsule (cata. polar. post.), thus interfering with the nutrition of the lens, and leading to shrinkage of its corticalis and detachment from its connection, the operation in capsule is indicated.

It is manifest from the above that the operation is not to be performed in every case, but in a great number with which we meet in practice. If, indeed, we were able to remove the lens in its capsule under all conditions, without being obliged to dread inordinate loss of vitreous or rupture of the capsule, we would have arrived at the acme of perfection, inasmuch as we would effectually prevent iritis, together with its succedanea, and always procure for our patients the highest degree of vision.

As I have said, the great predisposing cause of iritis after the usual extraction of cataract is due to the presence of capsular fragments, with or without the adherence of cortical masses. The tendency of the capsule, after it has been injured, that is, opened, is to fold upon itself, contracting in the direction of the axis of the eye, and inclosing a part of the remaining cortex, thus constituting the so-called *crystal-mass* (*Krystallmasse*, Becker). The aqueous humor is therefore prevented from acting on the cortical remnants and can not absorb the same. The crystal-mass, however, comes into close contact with the iritic surface, acting thereby as an irritant, inducing plastic exudation and consequent adhesion of the iris to the capsular fragments.

As the process of shrinkage goes on, traction on the iris is necessarily exerted in direct proportion to that shrinkage, the ciliary body becomes implicated, and the dangers to the eye are excessive. This traction continues until the process of shrinkage or shriveling up is completed. If cortical masses remain and are situated between the margin of the coloboma, and are slow in being absorbed, the plastic exudation increases in intensity and the condition may eventually lead to pupillary occlusion.

The results of the traction may be various:

1. A part of the pupil may be left free after the process of shrinkage of the capsule has been completed.

2. There may be left over a pupillary occlusion which we can remedy by an iridectomy; or,

3. The process assumes greater dimensions, and, passing to the ciliary body, an iridocyclitis may be produced which may lead to phthisis anterior.

The only way to avoid these disastrous results is to remove the lens in its capsule. It is, in fact, proved by statistics that there is perfect immunity from inflammatory symptoms on the part of the iris after this operation (Alex. Pagenstecher "Klinische Mittheilungen aus der Augenheilanstalt zu Wiesbaden," 1866).

The pupil, after the bandage is first removed subsequent to the operation in capsule, presents a perfectly clear black area; and, even if there has been no belladonna instilled, a mydriasis *ad maximum* is produced, often lasting from eight to fourteen days.

If, however, iritic complications *do* take place—through trauma (that is, traction and so forth), or iritic prolapse between the wound margins—the resulting process is nevertheless vastly different from that observed after the ordinary operation; it does not tend to the production of plastic deposits, and can easily be overcome.

And even if an exudation should take place after the possible iritis in this operation, the fact that the proper base, the anterior capsule, is removed, this exudation is not dangerous, for it ultimately finds its way, either into the vitreous or the aqueous humor, where it may be absorbed sooner or later.

In exceedingly rare instances a so-called base for the exudation may exist in consequence of blood remaining in the anterior chamber. If this blood becomes organized, the margins of the iris may adhere to it and give rise to synechia.

According to Becker ("Graefe-Saemisch," p. 398) secondary cataract, that is, capsular and pyramidal cataracts, may occur without any iritic complication at all; being due, indeed, merely to the proliferation of the intra-capsular cells which are attached to the anterior capsule, and which, if not removed, will lead to inflammatory products. All this danger is naturally done away with when the lens is removed in its capsule.

As regards the cyclitis which follows at times this operation (for there is no primary iritis after it, which renders this so vastly superior to the ordinary operation), it may be benign or pernicious; in either case, the great danger of pupillary occlusion is not to be feared, inasmuch as in neither case this form of inflammation possesses a tendency toward plastic exudation. In the mild form there may be simple irritation of the ciliary body, which passes off without the slightest deleterious results; in the pernicious form, owing to excessive loss of vitreous of a normal consistence, or to pulling and consequent irritation of the zonula, and forcibly tearing it from its attachments to the corpus ciliare. This, however, will only be the case when the fibers of the zonula are not atrophic, and can never take place in judicious hands, for the simple reason that the operation in the inclosing capsule—as shown by the classified indications given in the foregoing list—should *only* be performed when there is a supposition, amounting almost to a certainty, that the zonula fibers are atrophic, and that consequently the lens is, in a measure or altogether, disconnected from its attachments.

There is, however, another form of purulent infiltration, entirely distinct from that due to direct traction on the zonula and the corpus ciliare. The course and progress of this form is extremely chronic and slow, but none the less very certain; it differs from the former, inasmuch as this is very acute and rapid. It passes on from one organ to the other, and is due to a septicæmia, which has its origin not in the method of operating employed, but in some other, inexplicable cause.

Antiseptic lotions and bandages may perhaps control it, or the operation may be performed under the carbolic spray, as recommended and done at the Wiesbaden Hospital (H. Pagenstecher, *op. cit.*), and the possible appearance of the process may thus be prevented.

However this may be, it is, happily, a rare complication. It is met with not only in the aged and in those with atheromatous blood-vessels, but may make its pernicious appearance even in case of the young, and is owing to an unexplained tendency toward malignancy.

But to return: After a cyclitis has taken place the inflammatory process may spread to the vitreous, producing hyalitis; this, the hyalitis, is, however, never a primary condition, but is always called forth by extension from the inflamed surrounding parts. If, indeed, there were such a condition as a primary hyalitis, this mode of operating would be fraught with great danger, because, by the introduction of the instrument used to disjoin the lens-capsule from its fossa, an inflammation of the vitreous would be produced. Luckily, however, this is not the case, for the cells of the vitreous—if indeed such really exist, which is still a mooted question—maintain a strict neutrality and do not in the least participate in the inflammatory process (*v.* article "Zur Pathologie d. Glaskörpers," Knapp and Moos, I. 2., p. 7).

There is indeed but one great danger to the vitreous after the operation of the extraction of the lens in its capsule, namely, the rupture of the hyaloid membrane, and inordinate loss of the healthy hyaline liquid, thus producing various morbid results; that is, opacities, varying from very fine filamentous obscurations to excessively dense infiltrations. These are, in a great measure, due to the fact that when there is loss of vitreous, the anterior limiting membrane being ruptured, the wound-margins are kept from closing, the process of healing is protracted, and lymphoid cells proliferate, passing from the wound and the ciliary into the vitreous (H. Pagenstecher, *op. cit.*). Entering the vitreous body these cells are further developed therein, assume the nature of connective tissue, and give rise to *flocculent* opacities. *Diffuse* opacities of the vitreous, on the other hand, are produced by a chemical metamorphosis, the nature of which is yet unexplained. They are met with more especially in the case of diabetic cataracts, whose altered capsular contents, owing to a certain retrogression and morbid change in its constituent particles, act, in the first place, in a deteriorating manner upon the iris, from thence upon the corpus ciliare, and thence upon the vitreous.

Inflammatory changes of whatever kind going on in the uveal tract, however, may produce the chemical changes in the vitreous spoken of.

The other ill result of rupture of the hyaloid and inordinate loss of vitreous may be shrinkage and collapse of the eye, leading to phthisis bulbi.

However strange it may appear, there is but little deleterious effect upon vision or on the healing process, except that it may retard the same, after the loss of even quite a large quantity of vitreous, provided this is in a fluid state.

Bowman (in "Ophth. Hosp. Rep.," vol. iv., part iv., p. 353) on "Extraction of Cataract," says: "If the posterior capsule has unfortunately been ruptured, in such a case we need not be too anxious to limit the loss of vitreous. The eye often seems even to do better with a loss of two or three minims than of one; and, if any at all be lost, there is often an advantage in encouraging the loss to this extent."

An eye with a fluid vitreous can, indeed, lose twice as much as one with a vitreous of a normal consistence. Moreover, although the tendency to loss of vitreous is present in this operation, the facts show that, if it be well performed, the loss of vitreous need not be very frequent, and not necessarily followed, as above shown, by ill results.

Loss of vitreous, indeed, is not a necessary complication, if the operation does not have as a sequence any rupture or prolapse of the anterior margin of the vitreous.

Normal vitreous need scarcely ever be lost; such loss being chiefly due to three causes, two of which at all events can, to a certain degree, be controlled. I refer to the contraction of the eye-muscles, and the consequent compression of the ball, which, together with violent pressure on the part of the patient himself, are the great predisposing causes, but can be successfully met by the administration of chloroform. This need be only given, however, to such patients as, unable to control themselves, give rise to the well-grounded fear that, by too great pressure, they will induce the grave complication referred to.

The third great cause of loss of vitreous, the elasticity of the walls of the eye, is very much less frequent than the two just mentioned.

As a rule, however, and especially because of the upward rolling of the eyeball and the consequent difficulty of introducing an instrument between the lens-capsule and the fossa, chloroform need not be administered.

If there is hernia of the vitreous body, the hyaloid bursting or not, that is, if the anterior limiting membrane bulges forward and is thus caught between the wound and heals in that place, the vitreous loses in volume, traction is exerted, and the consequence may be that it becomes detached from the ciliary body.

If this happens, one should *a priori* suppose that there would be consequent detachment of the retina, or, one should imagine, opacities in the vitreous might even after a long time cause such detachment, by a process of shrinkage. This is not the case, however; such shrinking opacities may indeed induce a detachment of the vitreous, but neither this nor that will produce a corresponding detachment of the retina.

I will now describe the mode of operation and after-treatment.

The careful examination of the eye and its appendages prior to the performance of the operation, is, of course, absolutely necessary; that is to say, all affections which might protract the cure or interfere with the surgical procedure should be removed. Existing epiphora must first be remedied; trichiasis must be attended to; ectropium or entropium treated; the condition of the conjunctiva palpebrarum examined; chalazæ removed, and so on. If chloroform is not to be administered, the patient need not be dieted; if an anæsthetic is to be given, however, he should eat no breakfast on the morning of the operation. In either case, it is advisable that he have an evacuation before the operation—in order to prevent his going to stool and the consequent exertion and strain for a day or two subsequent to the operation. This absolute quiet is more especially called for after this than after the ordinary operation, on account of the likely loss of vitreous attending straining.

An assistant is to have the binocular folding bandage, together with two round pieces of linen sufficient in size to cover the eyeballs perfectly, and two cumuli of raw cotton or lint in order to fill out the hollows up to the orbital ridge, the necessary instruments and atropine (a solution of two grains to the ounce) in readiness, and the patient is then to be placed in the bed in which he is to remain subsequent to the operation, until the process of healing is completed.

If the patient earnestly desires it, or if it is perceived that he does not possess sufficient control over himself—which can be tested in many cases as soon as the stop-speculum is introduced between the lids—chloroform may be administered; as a general thing, however, it should not be given, since the operation can safely be performed without it.

The linear incision lessens the danger of a prolapse of the vitreous, and the upward rolling of the eyeball after the administration of chloroform renders the performance of the operation more difficult, or, at any rate, protracts it unnecessarily. It may be said that Pagenstecher ("Klin. Mittheil.," 1866) insisted on the administration of chloroform; but, as he performed a large flap operation in the sclera, employing Beer's triangular knife to make the incision within the sclerotic, it was deemed necessary, by him, to put the patient under the entire influence of an anæsthetic, in order to remove all danger of muscular contraction, the more as the large and peripheric wound is extremely favorable to a prolapse of vitreous. In the operation as performed by me, the use of the anæsthetic is not necessarily indicated.

If the left eye is to be operated, the surgeon stands before the patient; if the right eye, he takes his position at the head of the bed.

The speculum having been introduced, a fold of conjunctiva together with a little sclera is to be taken up by means of the fixation forceps, near the margin of the limbus corneæ, directly opposite to the point of incision. By this means, the bulb is under perfect control, being well fixed.

The center of the incision therefore lies in the same meridian in which fixation is made. I always employ Graefe's knife, and make the incision as well as the excision in the sclera (about 2''' from the superior corneal margin); the middle of the incision, however, lies in the limbus conjunctivæ corneæ. By doing this, I place the danger of a loss of vitreous at minimum.

It is a recognized fact that the most favorable position for a prolapse is the center of the incision, because at this place is its greatest gaping, or, in other words, its least power of resistance against the intra-ocular contents. It is therefore safest to place this most dangerous point of the incision as far inward as this is possible for the healing process (*vide* Knapp, "Graefe's Arch.," xiv. I. 1868).

We also decrease thereby the tendency to hæmorrhage, inasmuch as we avoid the canal of Schlemm. And last, the wound heals much more rapidly if partly corneal than if entirely scleral.

After the incision has been completed, I apply the fixation forceps near the inferior segment of the cornea and roll the eye very gently downward, without exerting the slightest pressure. I then make a large iridectomy, being careful to replace the edges of the iris in the wound, in order to guard against a prolapse. If posterior synechiæ exist, I break them by means of the silver spatula, and then, removing the speculum, I again resume the fixation forceps in the former position and let the assistant hold it. By means of a backward and forward gliding motion of Daviel's spoon, I exert a slight pressure on the upper wound-margin and sometimes succeed in causing the lens to present itself in capsule between the lips of the incision. If this occurs, I rotate the eye far downward and continue judicious and gradually increasing pressure on the upper wound-margin, together with simultaneous slight pressure by means of the forceps against the lower wall of the eye. If, after slight pressure, the lens does not appear, I abstain from the further employment of this maneuver, for fear of bursting the hyaloid and having loss of vitreous.

Before proceeding with the description of the further steps of the operation, I will say a few words regarding Pagenstecher's spoon and the one I employ.

He describes it in the following manner: "The spoon I use is made of silver; its shape is that of a lengthy oval, almost imperceptibly wider toward the end than near the handle. It is larger than all others in use. The margins are not precipitately steep, as is the case in the spoon of Waldau, but they are very gradual in their increasing steepness. In spite of this circumstance, however, its depth is quite decided. In general, the concavity of the spoon is in exact proportion to the curvature of the lens. The margins are thin, almost sharp, and very slightly bent inward, so that they do not injure the lens in passing over the surface. As soon, however, as the lens has been received in the concavity, it is firmly held there and cannot slip out."

The instrument I employ can hardly be called a spoon. It consists of a small rim of silver, exactly large enough to inclose the lenticular surface with its capsule. This rim is also a long oval, possessing the transverse and antero-posterior diameters of Pagenstecher's spoon. It was constructed for me by Weiss & Son, of London, and its use has been attended by excellent results, inasmuch as it envelopes and retains the lens in its capsule. Its form is such (being a rim simply and not a spoon) that there is much less danger of dislocating the lens, or of rupturing the hyaloid, since it takes up so little space.

But to proceed: Still keeping possession of the fixation forceps, with which I draw the eye well down, the lids being held apart by an assistant, I now introduce my spoon carefully behind the equator of the lens, letting it glide along the posterior capsule, always preserving strict contact therewith. I continue to insert the spoon between the hyaloid and the posterior capsular surface until the lower lenticular margin is reached, and thus the whole lens is situated within the rim. I now exert a slight pressure on the lower part of the lens, together with slight depression of the handle toward one of the corners of the wound, thus bringing the anterior capsule in close contact with the posterior corneal surface. This latter acts as a kind of support to the contents of the spoon, that is, the cataract, which, by slight but steady movements, will appear outside. The capsule seldom bursts during this mode of operation; if this does take place, however, the rest of the lenticular mass can be quite easily removed, after the same principles as in linear extraction. As the rupture generally happens when the greater part of the lens is already outside of the wound, the remaining quantity of lens matter is very small.

After the cataract has been extracted within its capsule, atropine and the binocular-pressure bandage are applied, and the patient enjoined to keep perfect rest in the recumbent dorsal position.

Vitreous may or may not be lost; or there may be or may not be a prolapse of the vitreous. A small loss of healthy and a rather profuse loss of fluid vitreous need not cause undue alarm.

If there is a prolapse, it is generally replaced after the lids are closed and a moist sponge applied; if, however, there is a large prolapse of dense vitreous, which will not return even upon the continued application of the moistened sponge to the closed lids, and especially if it causes much gaping, it is best to cut it off with Cooper's scissors.

It may be said in this place that, in every case where there is a loss of vitreous after the incision or the iridectomy, whatever mode of operation had been originally intended, the extraction in capsule should be immediately undertaken.

If there is much bleeding after incision or iridectomy, soft strokes with the spoon on the cornea will suffice to cleanse the chamber, or slight strokes with the lower lid on the cornea will remove the blood.

The different steps of the operation may, in conclusion, be thus summed up:

1. A large linear incision in the limbus corneæ, the points of the in- and excision being within the sclera; the incision to be larger than that of Von Graefe, because the lens is to be removed in its totality.

2. Iridectomy, also large, as the lens and capsule have to pass; care is also to be taken to replace the margins of the coloboma.

3. Pressure to be exerted by means of the fixation forceps, applied near the inferior corneal margin, opposite to the superior corneal incision, and the pressure to be also simultaneously applied on the upper wound-margin by means of the finger or Daviel's spoon; if the lens, however, does not appear, then

4. The spoon is to be introduced gently along the posterior surface of the capsule, between it and the hyaloid, care being taken not to lose the attachment between the posterior capsule and, the spoon; and, to make this attachment firmer, it will be advisable to incline the handle slightly, thus pressing the anterior capsule against the corneal surface.

5. By a careful traction, the lens is then to be delivered in its capsule.

The after-treatment differs in no way from that indicated after the ordinary operation. If a loss of vitreous has taken place, the bandage should be maintained in its position for about forty-eight hours, contraindications not existing, in order to prevent the reopening of the lips of the wound and further loss of vitreous.

Diet should of course be fluid in the first days; and, if the patient has been addicted to the daily use of alcohol, he should not be totally deprived of it, even after the operation and during the healing process; a small quantity should be given him in order to avoid possible delirious attacks, very apt to be produced in such subjects under the pressure-bandage.

If irido-cyclitic attacks appear, they should be met in the usual way—that is, leeches to the temple, the frequent instillation of atropine, calomel internally, and hot applications.

The process of healing varies from twelve days to four weeks, and is of course longer if there has been a prolapse of the vitreous than if this has not taken place.

ART. II.—*A Criticism of Dr. De Rosset's Theory of the Action of the Muscle of Accommodation.* By DAVID HUNT, A. M., M. D., Boston.

OUR knowledge of the function of accommodation has not yet reached that degree of completeness that enables us to establish a law governing its exercise; as in many other departments of physiology, we are obliged to content ourselves with an hypothesis that, without contradicting any known fact, brings the different phenomena relating to the function into a rational connection. We have a right to demand of the originator of a new hypothesis that he shall either demonstrate some new fact contradicting the old theory, or that he shall furnish a more rational and more generally applicable explanation of the related phenomena.

Having carefully examined De Rosset's new theory of the action of the muscle of accommodation,* according to which accommodation for near vision is passive, while the contraction of the ciliary muscle, the active process, results in accommodation for distant vision, we have reached the conclusion that he not only demonstrates no new fact, that he not only does not furnish a satisfactory explanation of related phenomena, but that he has even made some errors concerning well-established facts relating to the anatomy of the muscle in question, and has failed to state fairly the theory of the action of the muscle as at present accepted.

Thus (p. 351, *loc. cit.*) De Rosset speaks of longitudinal and crosswise fibers converging with the meridional fibers to form "the bulky portion *of the muscle known as the ciliary body and processes.*" Such an obvious mistake might be passed as an inadvertence were it not that it is repeatedly made, and that De Rosset, and Loring, from whom he quotes, have each shown, in their theories as to the causation of the shape of the muscle in myopia and hypermetropia, a tendency to consider the ciliary body as an indifferent whole, subject to purely mechanical laws.

Dr. Loring finds a cause for the existence of the long, thick, ciliary muscles of myopia in the lengthening of the

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* "American Journal of Medical Sciences," October, 1878.

globe which occurs; he forgets that the ciliary muscle is situated upon that segment of the globe that hardly changes its radius of curvature, in the lengthening that occurs in the myopic eye, that this increase is effected at the expense, principally, of the posterior portion of the globe; yet De Rosset says, "Loring has shown that these triangles (triangles referring to different shapes of ciliary muscle) are probably in no way connected with the exercise of the accommodation, but exist as anatomical consequences of a longer or shorter axis. This may probably be accepted as a fact, but no explanation is given for it." In the light of Loring's neglect of all exact observation of the specific characteristics and function of the muscle itself, and in the light of the careful observations of Iwanoff, confirmed by Arlt, Sattler, and others, we must conclude that Loring furnishes but a coarse, unscientific hypothesis, supported by no facts, and paralleled only by that of De Rosset, who, soaring above all anatomical considerations, finds a "true geometric reason" for the changed shapes. "They exist of necessity," says De Rosset, "because the meridional fibers, as they dip inward toward the anterior pole and axis, must become infolded and form prominent plaits, the progressively contracting zone not furnishing space enough for their expansion into a thin, smooth layer, as nearer the equator." One might ask why, then, if lack of room for a thin, smooth layer exists, they do not form a thick, smooth layer? Why must they necessarily be plaited, since there is nothing to hinder their growing thicker? Really how much are they plaited? Or is the author again confusing the ciliary body with the ciliary muscle? But the essence of De Rosset's theory of the cause of the variations in shape of the ciliary muscle is the above-mentioned "geometric" cause, according to which a triangle, attached by its base to the inner surface of an oblate sphere, must have its opposite angle more acute; while a triangle attached in a like manner to the inner surface of a prolate sphere must have its angle more obtuse; this is all that remains of the "geometric reason" when divested of the process of "infolding," which process does not occur in the eye. We will concede that the structure in question might be imitated by enfolding cloth or any other plastic material in a manner like that suggested by De Rosset; it might also be imitated by a gathering string, as in the mouth of a money-bag; but it is evident that Nature takes neither of these methods, for the ciliary processes develop and grow upon the anterior segment of the globe after it has taken its proper curvature. There is a sharp contrast between the methods of Iwanoff, who bases his hypothesis upon the results of extended, original researches, that have added much to our store of facts concerning the ciliary muscle, and the baseless "guesses" of our American colleagues.

The same independence of observed facts is shown by De Rosset in his statement of the developmental history of the zonule (p. 353); quoting from Manz's most superficial account of the process in the Graefe-Saemisch "Handbuch," he makes the false deduction that the zonule is "not of the nature of connective tissue, and, therefore, it is proper to infer, not of the same genetic origin as the trabeculæ of the vitreous." Now, the fact is that the zonule is undoubtedly of connective-tissue origin; so probably is the vitreous, although a few authors, like Kessler, deny the fact.

To furnish a basis for his theory of a backward action of the ciliary muscle, De Rosset supposes that its posterior termination is a "true posterior tendon;" now, perhaps there is not much mobility of this head of the muscle; still it passes over into the choroid, and the connection of this membrane with the sclerotic is so slight and loose, like that of the ciliary muscle with the same part, that it cannot furnish so fixed and immovable a point as that supplied by the insertion of the proper tendon, anteriorly, into the cornea and the membrane of Descemet. The existence of this true anterior tendon is the key to our common hypothesis concerning the relaxation of the zonule by the action of the muscle; the zonula Zinnii is closely connected with the whole inner or posterior surface of the ciliary body; now, since we know only of a synchronous action of the whole muscle, and since its one real fixed point is anteriorly near the corneo-scleral margin, we can only conceive of a contraction of the muscle which shall move the free head of the ciliary body toward the ligament; thus the direction of the line of force in which the muscle acts is changed so as to be directed more toward the ligament; this would necessarily result in a relaxation of the zonula were it not that the elasticity of the lens causes it to increase in thickness as the tension of the zonule is lessened. De Rosset is at fault in his idea of the present theory when he states that it supposes a retraction of the muscle toward its choroideal insertion; if his supposition were correct, his conclusion "that under no exigency of the hypothesis is it possible to conceive of the zonule being relaxed by a contraction of the ciliary muscle" might be admitted; as the facts stand, however, it is not the hypothesis, but De Rosset's false conception of it that is at fault. Let us examine his hypothesis in comparison with the old, which he seeks to displace; he describes the action of the muscle as follows: "When the muscle contracts, its tendency is to separate from the sclerotic to form a chord, of which the sclerotic would be the arc. But actual separation of the two would be impossible unless the space remaining were instantly filled (for which, obviously, no provision is made), so the sclerotic follows, of necessity, the retreat of the muscle, by virtue of the counter-extension which the pressure upon the vitreous exerts upon the poles of the globe. The effect of this antero-posterior extension is to elongate slightly the vitreous body, and to press against the lens in front; but it cannot advance this, because a forward movement of the lens is restrained by the synchronous backward traction transmitted through the lenticular head of the muscle."

It is difficult to obtain an idea of a contraction of the ciliary muscle effecting an elongation of the globe by pressing upon the vitreous, while "a forward movement of the lens is restrained by the synchronous backward traction transmitted through the lenticular head of the muscle," for we can only suppose in this case that the pressure upon the vitreous acts posteriorly, and that it is the thick sclerotic of the posterior portion of the globe that is distended; this is manifestly a *reductio ad absurdum*, but either this motion takes place, or, according to De Rosset's hypothesis, no motion takes place, that is, the sclerotic does not really follow "the retreat of the muscle"; and if no motion takes place, the lens cannot change its shape, consequently there is no accommodation. This all results from De Rosset's idea that the muscle *re*tracts, not *con*tracts, and that the "zonule is only attached to the *muscle* along its lenticular head."

We find the generally accepted theory of Helmholtz more rational. 1. Because a contraction of the muscle is supposed to take place principally toward its one undoubted fixed point near the corneo-scleral junction; this motion forward is the only conceivable motion of the muscle that can alter the tension of the zonule so as to permit of a change in shape of the lens. 2. Because it merely supposes a change in direction of the line of force of the muscle, not a change in shape of the globe filled by nearly incompressible fluids; the muscle is competent to perform the former feat but not the latter.

I would submit the following portions of two successive paragraphs of De Rosset's paper as evidence of his confusion in regard to the subject under discussion: "In the lenticular head of the muscle the proportion of fibers is much greater than in the corneal head, and hence the actual amount of movement described by the lenticular head must be greater than that described by the other; and this movement can only be backward, since all the fixed points lie in that direction. If any posterior part of the muscle were advanced, it could not relax the zonule, since this structure is only attached to the muscle along its lenticular head" (p. 355).

"The two anterior heads" (corneal and lenticular) "of the muscle respond to the same nervous impulses, whether volitional or reflex, contracting or relaxing synchronously. The outer (corneal) head holds the muscle firmly in contact with the sclerotic, and prevents the excessive dragging back of the muscle and associated structures, which would immediately follow if there were not a fixed point at the corneo-scleral line. The inner head, which, it will now be seen, is the only essential agent in accommodation, actuates the lens through the medium of the zonule."

Here we have in the first paragraph a comparison between the fixed corneal head and the movable lenticular head, to prove that the movable head moves more than the immovable one; then the statement that the zonule is attached to the lenticular head of the muscle, although we know that it is attached to the whole posterior or inner surface of the ciliary body; and finally we have the misstatement that "the movement can only be backward, since all fixed points lie in that direction," when we know that its anterior or corneal head is its only undoubted fixed point.

The spirit in which our author reads and quotes is illustrated by the following quotation: "Moreover Donders says that 'all voluntary movements require the intervention of muscular elements,' but, in strange contradiction, denies any muscular element in the adjustment towards ∞." Donders, it seems to me, merely denies muscular activity, not "a muscular element"; he considers the relaxation of a muscle a voluntary matter.

I have endeavored to apply De Rosset's hypothesis to an explanation of the phenomena attending presbyopia; his theory is that accommodation for near vision is passive, due to the resiliency of the lens, and that accommodation for distant vision is active. According to this idea, as the lens grows harder and muscular power less in old age, we should naturally expect that the active process of retracting the zonule and flattening the lens would grow more and more difficult, that the lens would remain more and more in its passive condition; consequently we should expect the near point to remain nearly constant, while the far point gradually approached the eye; although a logical result of Dr. Rosset's hypothesis, it is the opposite of what in fact happens. We think that the prevailing hypothesis explains the phenomena more satisfactorily.

Again (on p. 357) De Rosset says, "the subjective phenomena (fatigue, strain, pain, etc.), associated with the act of vision at near points, proceeds mainly if not wholly from the forcible contraction and long pressure of the internal recti muscles." Now, these phenomena are present in a marked degree in hypermetropia, and are relieved by convex glasses; these, of course, directly relieve the muscle that is attempting to cause an increase of the convexity of the lens, just as surely as prisms would be the proper remedy for these symptoms of hypermetropia if the internal recti were principally at fault. In view of our experimental knowledge of the use of convex and concave glasses and prisms, gained, as it has been, principally by the guidance which our present theory of accommodation has furnished, De Rosset's statements (p. 358) that "fatigue, etc., of close vision is not due to accommodation, but to convergence," and that "sensations accompanying distant vision, so unlike the others, are the outcome of the exercise of the feeble unstriped ciliary muscle," verge upon the absurd.

As far as our author's theory rests upon deductions from general theories concerning drug action, and concerning spasm and paralysis, we may leave it unnoticed, since the sources of his inductions are themselves matters of great uncertainty. We trust to have shown that observed facts and phenomena are more in accord with the hypothesis of Helmholtz than with that of De Rosset.

Art. III.—*On the Structure of the Blood-Corpuscles of the Oyster.* By A. M. Hurlbutt.

If we break the shell of an entirely fresh oyster on its thinnest edge, a small quantity of sea-water will ooze out. If we open the oyster by pulling apart the two valves, around the injured oyster large a quantity of fluid accumulates. This fluid contains the blood-corpuscles. First we oil the edges of an extremely thin cover on one side, place a small drop of the juice of the oyster upon a slide and cover it with the covering glass, the greased edges looking toward the slide. We then have a specimen ready for examination with the highest powers of the microscope.

A power of about five hundred diameters will reveal numerous granules floating in the fluid, in what has been termed molecular motion. These are granules of fat, of pigment, and of broken protoplasm. In the fluid there are swimming very often parasites, which I do not wish to consider at this time. Furthermore, *débris* of the tissues of the oyster and epithelia are to be seen, and lastly, numerous granular bodies, varying considerably in size and form, and continually changing their shape and locality for at least two hours. These are the blood-corpuscles of the oyster. Let us now put on a lens with a magnifying power of twelve hundred. I used an immersion lens of Tolles, of Boston, and one of C. Vérick, of Paris, both magnifying about twelve hundred diameters, with a short eyepiece, and both giving the same results as to the structure of the protoplasmic bodies.

We find globular bodies of the size of human red-blood corpuscles, to be considered as free nuclei, suspended in the fluid; and of which nuclei it is impossible to say whether they exist, as such, in the live oyster, or are freed by the injuring manipulation. Besides spindle-shaped bodies are present not surpassing the nuclei in size. Lastly, protoplasmic bodies are visible, varying in size from one and a half to seven or eight diameters of a human red blood-corpuscle, partly roundish, partly elongated in one or several directions, or stellate, that is, provided with a number of delicate radiating off-shoots. These protoplasmic bodies are in amœboid motion, changing their shape continuously by projecting flaps or elongated off-shoots (the so-called pseudopodia) on different parts of their peripheries and withdrawing them again. The changes of shape are not very lively, about as slow in character as we observe them on the amœba diffluens, or in colorless blood-corpuscles of the newt. At the same time locomotion of the protoplasmic bodies takes place, so that a corpuscle might migrate through the field of vision of the microscope within one hour. On the free nuclei I did not observe changes of shape or locomotion.

The blood-corpuscles are either devoid of a nucleus, or during the observation there may appear roundish bodies within the protoplasm, looking like nuclei, and disappearing again from our view. Other corpuscles from the very beginning show from one to five or six nuclei. When nuclei are thus visible at the beginning of the observation, they remain unchanged until the corpuscle, in which they exist, becomes motionless. In corpuscles in which no constant nucleus can be made out, sometimes a nucleus becomes visible when the corpuscle approaches the time of its death, that is, when it becomes motionless.

Let us now watch a corpuscle in which a nucleus is plainly marked, and we shall see as follows. The nucleus is surrounded by a yellowish, shining shell, which either is uniform in its width or looks beaded, as if built up by a number of granules, which are connected with each other by a thinner layer of the same substance of which they themselves are composed. Within the nucleus we again find granules, either uniform in size or some appearing to be considerably larger than others; these latter bear the name of nucleoli. The granules vary greatly in number and are either scattered irregularly throughout the nucleus or are arranged in the shape of wreaths, concentrical with the outer shell of the nucleus. Sometimes two or even three such wreaths are to be observed within the nucleus, a fact to which Eimer (*l. c.*) first drew attention. In small nuclei we observe, sometimes, only one central granule (nucleolus), and from this granule there project fine threads, from three to six in number, conical in shape, the bases of the cones arising from the granules, their thin ends tending toward the wall of the nucleus, with which all the cone-like threads are invariably in direct union. Thus a wheel-like figure is constructed, the hub of which is represented by the central granule (nucleolus), the spokes by the conical threads, and the felloe by the shell or outer layer of the nucleus, the latter representing only the optical section of the surrounding layer of the spheroidal body. All the described formations are suspended in a pale, colorless and structureless substance, between which and the fluid part of the blood outside the corpuscle no distinction can be drawn. When there are several granules present within a nucleus, all are joined together by means of fine, grayish threads, the granules thus representing the points of intersection of a network which traverses the whole interior of the nucleus. The granules next to the wall of the nucleus—it is immaterial whether regularly or irregularly placed—send delicate, grayish threads toward the wall of the nucleus with which they inosculate. The meshes of the network within the nucleus, filled with the homogeneous, colorless substance, vary in size. I, however, was not able to decide whether, during the motions of the whole corpuscle, there were also changes in the shape of the network within the nucleus, which S. Stricker asserts he has noticed in the network of the nuclei of the colorless blood-corpuscles of the frog and newt.

The structure of the nuclei, as just described, is visible on almost all nuclei, no matter how many may be seen within a protoplasmic body, and also on bodies floating in the fluid specimen which were described before as free nuclei. In none of the latter could I ever discover changes of shape or active locomotion. Not very rarely, however, we meet with small nuclei within the blood-corpuscles which look almost homogeneous and of a pale, grayish-yellow color, apparently devoid of structure. Such nuclei, which we might consider as somewhat larger granules, are also suspended in the outside fluid part of the blood, as well as within the protoplasmic bodies.

Whenever a nucleus is to be seen within a protoplasmic body, outside its shell a light seam can be observed always traversed by conical, radiating threads which spring by their broad bases from the shell of the nucleus, and unite by their thin ends with the granules next to the light seam. Such conical offshoots arise also from compact nuclei, thus giving them the appearance of angular bodies. Throughout the whole protoplasm granules of different sizes are scattered, all of which show the same color and the same power of refracting the light as those within the nuclei. These granules are united with each other by slender threads in the same manner as those within the nuclei. Very often the appearance is presented of a single granule surrounded by wreaths of other granules, all the latter being united, by means of radiating, conical threads, both to the central granule and to each other. Such small, wheel-like bodies may arise in different places in the protoplasmic body during its changes of shape. Besides the grayish-yellow granules there are numerous others of a more yellow color and of a greater refracting power, identical with that of fat-granules. Experience shows that such fat-granules are more numerous in the latter part of the breeding-season of the oyster—viz., in July and August. Many of these fat-granules are connected by means of delicate threads with the neighboring protoplasmic granules.

During the changes of shape of the blood-corpuscle often round spaces appear within the protoplasmic bodies, the so-called vacuoles. These vacuoles vary greatly in size; they are filled with the light, structureless fluid substance which we see within and without the meshes of the network. In this fluid within the vacuoles sometimes there are granules floating about. Each vacuole is surrounded by an extremely thin, grayish-yellow layer, which is always in union by means of delicate threads with the neighboring granules of the protoplasm. Sometimes several vacuoles arise within the corpuscle, and are separated from each other by a continuous layer, like the shells of a nucleus, and these shells give the appearance of a framework. The same appearance of vacuoles, though on a considerably smaller scale, I have repeatedly observed also on nuclei originally homogeneous and structureless-looking.

A continuous, though extremely thin layer can be seen on the periphery of and closing in the protoplasmic body. The outer surface of this layer looks smooth, while its inner surface is in connection with the neighboring granules by means of delicate threads.

While we watch a blood-corpuscle of the oyster at the common temperature of the room, continuous changes of its shape are visible as mentioned above. At the same time changes of the network within take place. Temporarily the granules seem grouped together, and the meshes considerably narrowed; opposite to such a group of closely packed granules flaps bulge out from the periphery of the protoplasmic body. Within a flap there is faintly visible a network only at the beginning of its protrusion; very soon this network is completely lost to sight, and the flap looks homogeneous and apparently structureless. At other times delicate, narrow hyaline offshoots are projected from the periphery of the blood-corpuscle, varying in number, and sometimes considerably surpassing in length the diameter of the protoplasmic body. These so-called false legs (pseudopodia), as a rule, look homogeneous, and run either in a straight direction or are curved and repeatedly bent. They are being projected and withdrawn frequently during the changes of shape of the corpuscle; sometimes they are thrown out so regularly, and in so great a number, that the corpuscle assumes a beautiful star-shape, the central body at this time being considerably decreased in size, and its granules closely packed together. The offshoots may also be irregular, and the blood-corpuscle may take on a considerably elongated, irregularly angular, and branching shape. On the thicker parts of the offshoots the netlike structure of the protoplasm is to be seen, while their ends always look hyaline and structureless.

During the changes of shape sometimes a number of granules melt together, thus producing the appearance of a temporary nucleus; such a nucleus after a few minutes may disappear again and a network be reëstablished, where shortly before there was a compact lump. Sometimes round bodies looking like nuclei jump forth from the interior of the blood-corpuscle, and float freely in the surrounding fluid. Sometimes protruded flaps become pediculated, and shortly afterward, through breakage of the pedicle, an isolated, pale body is separated from the original blood-corpuscle. Sometimes the protoplasmic body itself is becoming constricted on different parts of its bulk, and such constrictions may terminate in a separation of smaller lumps from the original body; on some of these lumps even the netlike structure of the protoplasm is still visible. Thus a larger blood-corpuscle may be divided into smaller lumps of different shapes.

After from one to two hours' observation, the majority of the blood-corpuscles, partly already considerably decreased in size through repeated divisions, swell up, and are provided with large vacuoles and large, structureless flaps. In this condition the network within the protoplasm is evidently broken apart, inasmuch as the granules are no longer connected with each other, but float in the interior of the protoplasm in a sort of motion for which the term "molecular motion" has been adopted. Lastly, such a swelled protoplasmic body bursts, and the granules are spread on the surrounding fluid, and with this, complete death of the blood-corpuscle has ensued. Blood-corpuscles of perfectly fresh oysters die after having been kept for about two hours under the microscope, while those from oysters which have been kept out of the sea for a couple of days die much sooner and more rapidly.

From the facts just described it would appear that the assertion of C. Heitzmann, with regard to the structure of the protoplasm as a general law throughout the animal kingdom, is corroborated also by the blood-corpuscles of the oyster.

Those observers who confine themselves to the study of the netlike structure of the nucleus only (including even S. Stricker, of Vienna) seem to have narrowed their views without any stringent necessity, inasmuch as the structure of the protoplasm is by no means different from that of the nucleus. There are only three authors (Van Beneden, of Brussels, Theodore Eimer, of Tübingen, and E. Klein, of London) who have seen the network in different protoplasmic bodies. That such a structure does exist, no one can doubt who is painstaking enough to observe the protoplasm with reliable and sharply-defining immersion-lenses.

Now, the question arises, What does this network signify? Those who study the protoplasm in dead specimens, preserved in different reagents, may obtain a clear view of the network. J. J. Woodward, of Washington, in his famous microphotographic plates of cancer specimens, published two years ago, succeeded in representing the network on all protoplasmic bodies, being in the right focus, by means of moderate magnifying powers of the microscope, but with strong oxy-calcium light.

Indeed, the significance of the network can be cleared up only by the study of fresh, living, and creeping protoplasmic bodies, and among these the blood-corpuscles of the oyster are highly recommendable, as the material is easily obtained and easily manageable.

From the circumstance that the network within the protoplasm keeps changing for from one to two hours, or as long as the corpuscle is living and changing its form and locality, we must conclude that the network is the contractile or living part of the protoplasm. Therefore the nucleoli, the granules of the nucleus, the shell of the nucleus, the granules of the protoplasm, the shells of the vacuoles, the boundary layer of the corpuscle itself, and lastly all the threads uniting the above-named formations to each other, are formations of living matter. The substance, on the contrary, contained in the meshes of the network of the living matter and filling the vacuoles, must be considered as a fluid not differing essentially from the plasma of the blood in which the corpuscles float about. That it is a fluid, we must conclude from the lively changes of the network itself, which would be impossible if the network were imbedded in a solid substance; from the easy formation of vacuoles during the life of the corpuscle; and lastly from the swelling of the whole corpuscle when approaching death, which phenomenon can be due to diffusion only. As no fluid is ever endowed with the properties of life, the fluid contained in the meshes of the protoplasm cannot be living.

Doubtless the different conditions of the living matter cause the changes of shape and also the changes of place—namely, locomotion. It is easily to be seen that with a grouping together of the granules (the points of intersection of the network) and the narrowing of the meshes, on a point opposite the place of active contraction of the living matter, a bulging out of a flap takes place. This bulging is apparently due to a passive extension of the living matter, as at the beginning of the protrusion an enlarged network is still faintly visible, which, however, is soon afterward lost to sight, owing evidently to an extreme stretching of the network. Both contraction and expansion of the network may subside into the condition of rest for a short period of time as long as the protoplasm is alive. Segmentary contraction may lead to the projection of starlike elongations (pseudopodia). Irregular contraction may result on irregularly-elongated shapes of the corpuscle, and the highest degrees of local contraction will result in constrictions, which again may terminate in the separation of single lumps from the mother body. Finally, owing to an accumulation of the fluid within the protoplasm, the latter becomes provided with vacuoles or swells *in toto*. The latter condition leads to a rupture of the network inside, the *débris* of which float about in the protoplasmic fluid in the shape of isolated granules. With the bursting of the whole body the death of the blood-corpuscle is accomplished.

Clinical Lectures.

On Secondary and Tertiary Syphilis. Delivered at Charity Hospital, Blackwell's Island, by WILLIAM H. VAN BUREN, M. D., Professor of Principles and Practice of Surgery, with Diseases of the Genito-Urinary System, in Bellevue Hospital Medical College, New York.

TERTIARY ULCERATION OF THE NOSE.

GENTLEMEN: The first patient whom I have the pleasure of showing you to-day is a man thirty-seven years of age, who came into the hospital ten days ago with the large ulcer upon the nose, which you now see. If it was not a progressing ulcer, as that term is generally understood, it certainly was progressing in the sense of an advance by means of molecular death in the part affected. It has destroyed, as you perceive, a considerable portion of the nose; but this occurred previous to the patient's admission here. The moment that he entered the wards the true nature of the case was recognized by the house-surgeon, and he was at once placed on full doses of the iodide of potassium, which has promptly arrested the destruction of tissue. The ulcer is no longer an advancing one; but, on the contrary, cicatrization has commenced, the discharges have dried up, and a scab has formed over the part. Instead of a process of destruction, there is now a process of repair going on.

When cicatrization takes place in these syphilitic ulcerations of the nose (as it invariably will if iodide of potassium is given in sufficient doses), it has the effect of drawing the end of the nose downward in quite a marked manner; and this you would do well to remember, because it is a very characteristic feature of such cases. When, however, there is disease of the nasal bones, and the bridge of the nose falls in in consequence, the point is, on the other hand, drawn upward, as we would naturally expect under the circumstances. In the present instance, by the partial destruction and succeeding cicatrization of the alæ, the end of the nose will be drawn downward.

In this case, gentlemen, you see a fair example of the blasting and blighting influence upon the system of this terrible disease, syphilis, as manifested in its tertiary or advanced stage. It would be extremely interesting if we could trace its history from the initial lesion, all through its subsequent developments, until the present time; but this is scarcely possible for us just now, for the patient's memory, I am afraid, could scarcely be trusted, and it would occupy altogether more time than we have to devote to it. Seeing the present condition of the man, however, we can readily picture to ourselves, with some degree of correctness, the antecedent history of the case; and one of the advantages of having so many cases presented to you here is that you are thus enabled to grasp the salient points in each, and so form a good general idea of the disease as it is wont to manifest itself in its various stages. Having such a general conception of it well established in your minds, therefore, it will not be necessary for you to follow back with minuteness the exact course of the disease in each individual instance that you meet with. We are getting toward the close of this series of clinical lectures on syphilis, and I desire now particularly to make you acquainted as fully as possible with the various forms which the disease assumes in its later stages. During the remainder of the course, therefore, I will endeavor to bring these out in such a manner that you will be enabled, in connection with what you have previously seen and heard, to form a correct conception of its entire history (from the earliest to the latest manifestations); at least so far as it can be illustrated by the material at our disposal in this hospital.

Thus far I have alluded to but one feature of the case now before us; but there is not wanting plenty of other evidence of the blasting effect of syphilis upon the patient's system. The disease has the property, as you are aware, of vitiating the blood in a very marked manner, and hence the process of nutrition is apt to be interfered with to a greater or less extent in various portions of the body, according as the deterioration of the blood is more or less profound. Among other features of this blighting disease we notice: (1) The general cachectic appearance of the man. He is emaciated to a very considerable degree, his nails have become deformed, and his hair is dry and unhealthy-looking, though it has not fallen out to such an extent as we often find. (2) There is general periosteal tenderness. (3) There is a large node upon the right tibia. (4) There are numerous cicatrices of gummy lesions upon both legs. (5) There are well-marked pigmentary deposits, especially about the lower extremities.

Let us now devote our attention a little more particularly to some of the points to which allusion has been made. When I was questioning the patient in regard to his symptoms, you heard me ask him what made his toe-nails grow in such a peculiar manner. This curious appearance which they present is due to the matrix having become deformed; and this is one of the characteristic methods in which syphilis manifests itself. Sometimes the nail falls out altogether, and the matrix is left suppurating; the discharge being exceedingly fetid. We have then what is known as syphilitic onychia. In cases where no specific trouble was suspected by the patients I have not infrequently stopped a tendency of the nails to crumble by adopting an anti-syphilitic treatment.

The hair, as you know, is of the same general structure as the nails, and like them, an appendage of the skin. Therefore, when the nutrition of the skin is impaired, the hair-follicles are of course affected, and when this occurs to any great extent the hairs fall out. Hence, whenever a patient applies to you for the relief of baldness, you will do well to make an examination of his throat, tibia, etc., to see if there is any evidence of syphilis present. In a very large number of instances I have completely stopped the hair from falling out by the administration of minute doses of corrosive sublimate, either with or without the addition of a lotion of the same remedy. It will be of service for you to bear in mind, therefore, that bald heads are sometimes best treated by an agent of this character.

The periosteal tenderness alluded to is very evident when any pressure is made upon the shins, the sternum, or the forehead; and, in addition, we find that the patient complains of more or less pain in these parts. In fact, he is, as he expresses it, "sore all over." There is, as has been mentioned, a large node on the right tibia. This is situated about the junction of the middle and lower thirds of the bone, and has now existed for about six weeks, according to the patient's account. I am very glad to have the opportunity of exhibiting this syphilitic growth to you, as it is the first time during the course that we have met with one presenting such well-marked characteristics. The periosteal tenderness, I may remark, you can always rely on as one of the symptoms diagnostic of tertiary syphilis.

The cicatrices of gummy tumors which have ulcerated are very numerous upon both legs, and for the most part are circular in outline and characterized by well-marked pigmentation. As I have previously intimated to you, pigmentary deposits are ordinarily more significant of syphilitic trouble upon the upper than upon the lower extremities; but in this case they are almost exclusively confined to the latter.

In this patient the throat does not seem to have been the seat of any special lesion, although he says that it was sore for a time. On examining it we find nothing of particular interest about it; but you will notice how very red the tongue is. The appearances of this man's tongue are entirely characteristic of the difficulty from which he is suffering, and I do not doubt that his stomach is in very much the same condition. We are not surprised, therefore, to learn, on inquiry, that his appetite and digestion are very poor. The intestines also are probably affected in much the same manner on account of the vitiated state of the blood supplied to them, and, consequently, are unable to perform their functions properly. So, we see, the whole system is under the influence of this direful poison, although happily the measures employed for counteracting and eradicating it are now beginning to have an appreciable effect upon the case.

In other instances you have recently had the opportunity of observing the mischief wrought by syphilis when it attacks the bones, as is very frequently the case in the tertiary stage. In the present patient, however, the skin seems to be the principal seat of the disease, and ulcerations of the surface in various parts of the body have of late been its prominent characteristic. The blood has become profoundly depraved, and iodide of potassium is now being given with the idea of improving its quality. It has the property of increasing the number of red globules; and thus you can understand how this drug (for which we cannot be too thankful) came into use in syphilis, as well as how certain its action is. Before iodine and its compounds were employed in the treatment of the disease, patients who came under medical care in its later stages, and were suffering from its most disastrous effects, were compelled to wait for the much slower action of some of the forms of mercury before they could get relief. For instance, in the present case, instead of two or three days, it would have taken at least as many weeks to arrest the destructive process going on. With iodide of potassium at our command, we can always put a stop to the destruction of the nose, soft palate, or any similar loss of tissue. All that we have to do is to administer the remedy in sufficient doses, at first giving it in such quantities as not to interfere with the stomach, and, as soon as a tolerance of it has been established, pushing it until the effect desired has been produced.

Again, judging from the appearance of this patient's tongue, of the condition that the whole alimentary tract must be in in these advanced and cachectic cases of syphilis, we can readily see how the free use of mercurials in them might result in a fatal enteritis or dysentery. In the writings of the older authors you will frequently see allusions to such accidents, and cautions in regard to the use of mercury in cases of this character, on account of the danger thus incurred. In cases of dyscrasia like the present, mercury is almost certain to bring on a diarrhœa of greater or less severity. Hence it was that, years ago, mercurial baths were introduced by Langston Parker as a substitute for the internal administration of the drug; and long before his time some of the old surgeons used to expose the throats of their syphilitic patients to the fumes of calomel or cinnabar.

Mercurial inunction, I may mention, was also resorted to to a considerable extent with the same end in view; blue ointment being ordinarily employed. Before iodide of potassium was known of as an antisyphilitic remedy, these were the methods employed in such cachectic cases, where it was desirable, for the purpose of neutralizing the syphilitic poison, to bring the system sufficiently under the influence of mercury for the neutralization of the syphilitic poison without producing diarrhœa or other dangerous symptoms. The very much better results accomplished with the iodide of potassium in these cases show what an advance has been made in this department of medical science. There has been and is a steady progress in our knowledge of syphilis and its treatment; so that we are infinitely better off in this respect than our fathers were, and the generation to which you belong will know a great deal more about the subject than mine does.

The next case which I bring before you is one of so-called

SYPHILITIC RHEUMATISM,

which you have seen here before; and you perceive that the man has considerable difficulty in walking. Here, as in the preceding patient, there is considerable periosteal tenderness about the sternum and shins, but, instead of the disease manifesting itself principally in lesions of the skin, as in that case, we find that the vitiated blood affects the nerve-cells more particularly in the present instance, blighting them and interfering with the proper performance of their functions. One of the curious things about syphilis is that in different cases it produces such different lesions. In one patient it affects exclusively or chiefly the nerve-cells, in another the skin, and in another the bones; but why this should be so we are entirely at a loss to say.

Therefore, to assist you in making your diagnoses of syphilis, I want to make you understand thoroughly that there is nothing certain or regular about it except its irregularity. This, however, is true only in a somewhat restricted sense, since there are certain broad rules in regard to the disease (such as I have already laid down for you) which are as fixed as anything can be. For instance, there is no exception to the method of inoculation, or to there being a certain period of inoculation.

The grand features of the disease I trust you will all become perfectly familiar with here, and, by storing up in your minds these various clinical pictures as they are presented to you, will be enabled to aggregate them in such a manner that you can form a correct general conception of it as a whole. So when you get into practice, and meet with a case in which all the classical signs are not present (for instance, certain glands may not be enlarged which you naturally expect to find enlarged), you will not on that account pronounce that the patient has not syphilis. Again, one way in which these clinics ought to be of service to you is that you here see various kinds of cases precisely like those you are liable to meet at any time in your future life, and, when these do come under your notice, they will bring up fresh in your memories what you may have seen and learned here. It may be that you will meet with some anomalous form of nervous disease which will at first puzzle you very much and baffle all your efforts to relieve it; but, when you remember that just such symptoms as may be present are sometimes produced by the syphilitic poison, and, in accordance with this idea, put your patient on specific treatment, the whole case will become clear to you. The most interesting point about such cases as these is that we are generally able to make a complete cure, or at least benefit the patient very materially; and this will, of course, redound greatly to the credit of the medical attendant. It is in this way that our knowledge gives us power.

Only yesterday I was consulted in the case of a young lady of the highest respectability who was in a cachectic condition, and was suffering from ulcerations of the skin, periosteal tenderness, and all the general features of constitutional syphilis. Without asking a single question, I at once recognized what the trouble was, and I did not, therefore, think it necessary to demand from either the young lady or her parents confessions which I knew it would be exceedingly painful for them to make. If we can gain sufficient information for our purpose in such a case without cross-questioning or subjecting our patient to a trying inquisition, we use our knowledge, as it seems to me, in a very useful manner, and much scandalizing of families can no doubt often thus be prevented. Our object as physicians is to do our patients good physically, and not to keep up a supervision of their morals.

EXTENSIVE SERPIGINOUS ULCERATION.

The case of our next patient is interesting from the fact that it presents a form of syphilitic ulceration which I have not as yet had the opportunity of exhibiting to you, viz.: the *serpiginous.* When the man is stripped you perceive how very extensive is this ulceration, extending in a somewhat scroll-like form around the anterior portion of the trunk from a point several inches beyond, and somewhat below, the left nipple to about the line of the right nipple; the broadest part of the ulcerating band being under the latter, and measuring at least four inches in width. The term serpiginous, derived from the verb *serpere*, "to creep," is significant of the manner in which such a superficial ulceration as this slowly advances over the surface, involving new areas of skin constantly as it advances; while cicatrization is going on in the portions which were formerly the active seat of the lesion. It is a kind of ulceration never seen except in syphilis and some forms of lupus, and the antecedent history will easily determine to which disease it belongs in any given case. Here this trouble has lasted about four months; but the man tells us that he had primary syphilis, with marked falling out of the hair, ten years ago. As previously mentioned, alopecia occurs in syphilis simply because the skin is affected by the poison, and the hair-follicles are consequently not properly nourished. Now, again, in this case, we find that the hair comes out very easily; but we cannot expect that a man should have a healthy skin who is troubled with such a serpiginous ulceration as this. Nor is his constitution in general in any better condition than his skin: in other words, it is still carrying a load of vitiated blood and laboring under the other depressing effects of syphilis. When we examine his throat, we find well-marked scars about the soft palate; and such cicatrization as this is never seen in this locality except as a result of syphilis. It is always very desirable to get such corroborative evidence as this, and yet surgeons, as a general rule, are far too apt to overlook them.

From what you have now seen and heard of this case, therefore, it is very evident that it is still necessary that the patient should undergo a course of appropriate treatment.

Under such treatment I am confident that he will soon begin to look and feel better. It will also, I trust, put an end to the low spirits in which we now find him; for syphilis has a depressing effect upon the mind, as well as the body. What I would recommend here would be the "mixed treatment," by which we understand a combination of some of the preparations of mercury with iodide of potassium. The best mercurial for this purpose I have found to be the biniodide, and I would suggest that we should commence by giving one twentieth of a grain of this drug, with five grains of iodide of potassium, three times a day, in a mixture of syrup of orange-peel and water. When using this mixture in summer it is best to add enough tincture of orange-peel to prevent fermentation of the syrup. This you will find a very excellent formula; but in all cases such as the one now before us you must give your patient to understand that, as the disease is a chronic one, it is positively necessary that he should continue to take the remedy regularly, patiently, and perseveringly for a long time, and that if he will not follow your advice strictly you can not promise that he will receive any benefit from the treatment. The dose mentioned should be increased little by little, as the stomach is able to bear it; and, if the patient follows out your directions carefully, in the great majority of instances you can promise him not only relief, but a complete cure. This, however, will take months, and in some cases years. You should always bear in mind the chronic character of the disease, and the necessity of keeping up whatever remedies are employed in the most systematic manner. To succeed in carrying out this plan you will have to bring to bear upon the patient all the influence that you possibly can; although the moral qualities of most syphilitics are about as bad as their physical condition.

In the time that remains of our hour I propose to bring before you two or three patients suffering from

SECONDARY SYPHILIS,

in order that you may refresh your memories in regard to some of its more prominent characteristics, and also that you may contrast its manifestations with those of tertiary syphilis, as exhibited to you in the cases which have just been shown you. Here is a young man whose body is completely covered with a typical papular syphilide; and in connection with this we find marked enlargement of the epitrochlear and post-cervical glands. It is a classical case, in which an indurated sore on the penis with multiple bubo, unaccompanied by suppuration, was followed by a general roseola; and this by the present glandular enlargements and papular eruption, as well as the condition of the throat, to which I will now more particularly ask your attention for a moment. We have here a very "porky" pair of tonsils, as they are called; the appearances which you observe here being peculiarly characteristic of syphilis, and not seen in any other condition. Read the description in the old writers of the throat-lesions which follow a "Hunterian chancre," and you will find that they are presented in a typical manner in the case now before you.

The patient is taking one third of a grain of the proto-iodide of mercury three times a day, after meals. This drug should always be given after eating, because, as ordinarily furnished by American druggists, it is otherwise very apt to irritate the bowels. The best way to administer it, I think, is in the form of French granules, which are about the size of homœopathic pills. You should always commence with a small dose (say one fifth of a grain), and increase this gradually to one third of a grain, or even more, if it is well borne.

In the next patient we also have a papular secondary eruption, but you will observe that it is more on the pustular order. The vesicles, however, are very small, and the eruption belongs to the variety of syphilide known as

SYPHILITIC ACNE.

The lesion, you notice, bears a close resemblance in its gross appearances to ordinary acne; but the latter is an affection of the sebaceous glands, and is never met with on the legs or the lower part of the body, as is the case with the present eruption. This patient is also suffering from pains about the knees, which are of the character known as rheumatoid, and are to be distinguished from the periosteal pain and tenderness which come on later in the disease.

Clinical Records from Private and Hospital Practice.

I.—*Symblepharon complete from Idiopathic Causes; a very Rare Disease.* By Julian J. Chisolm, M. D., Baltimore, Maryland.

A. S., aged 36, presented himself at the Presbyterian Eye and Ear Charity Hospital for surgical treatment, with the lids of each eye firmly sticking to their respective eyeballs. He gave the following history: When sixteen years of age he was affected with a general acute cutaneous disease, which his family physician called eczema. He says that blisters as large as the end joint of his thumb formed in various parts of his body. In the course of his sickness the skin peeled off in spots, making bleeding surfaces as large as the palm of the hand. These in healing left cicatrices, which are still visible and which become prominently mottled in cold weather. With the general skin disease the eyes were painfully involved with much swelling and mattering. This malady proved a chronic one, and it was many weeks before the raw places, on his back, chest, and abdomen, got well. When the inflammatory swellings had subsided from the face, the eyelids were found adherent to the eyeballs, accompanied by a thickening of the corneal surface, which interfered much with sight. The left eye had suffered the most. After two years of partial blindness his physician undertook to improve his left eye by cutting off the skin which had formed over the sight, at the same time liberating the eyelids from the eyeball. In trying to secure this much desired improvement by operation, the surgeon unfortunately took away the cornea, exposed the anterior chamber, and excited a panophthalmitis which terminated in complete atrophy of the globe. An offer to try the other eye with hopes for a better result was not accepted. From that time to the present the patient, now a married man with a large family, has worked on a farm, with sight enough to enable him to plow and hoe.

Eighteen years have elapsed since the acute attack and sixteen since an attempt at relief was made on the left eye by operation. At present the eyes exhibit the following conditions: The left eyelids are so thoroughly adherent to the shrunken eyeball that they only show the palpebral split. The mucous edge of the lower lid being directly continuous with that of the upper, leaves the dermic borders free to gape a little, so as to define their individuality. Lashes line each border in full force. The lids have grown to the eyeball over their entire surface, and are adherent to each other by their mucous edges from canthus to canthus without a point of intermission.

The right eye exhibits no symblepharon until handled. The cornea looks dull, like a too long used artificial eye. The palpebral split is of full length, only slightly contracted in height, with lids just covering the upper and lower margins of the cornea. A closer inspection shows the lids to be firmly adherent in these lines to the eyeball, from canthus to canthus, without a single point free. The adhesion of the entire surfaces of eyelids and eyeballs seems perfect, so as to have obliterated every trace of conjunctival *cul de sac.* In stretching the lids at the outer and also at the inner canthus the membrane runs smoothly from one lid to the other with the most perfect obliteration of the puncta lachrymalia on the one hand, and the most complete occlusion of the lachrymal gland outlets on the other. On the upper, lower, and outer surfaces of the cornea the conjunctiva has encroached, and can be lifted as a thin membrane from the surface when the lids are drawn forward, a similar condition to an advanced pterygium. One third of the cornea, the inner and lower segment, is covered by thickened epithelium only, which allows the pupil to be seen by translucency. Through this ground-glass surface he makes out some letters of (XX) Jaeger's test types, and counts fingers at three feet distance. The exposed surface of the eyeball is as dry as the skin, no lachrymal secretion having moistened it for eighteen years. The long exposure, desiccation, and thick epithelial covering have so destroyed its sensibility that the corneal surface does not resent the rude rubbing of the finger. Smoke does not affect it, nor do particles of dust which the wind often throws against it. He washes the front of the eye as a part of the face. He finds it necessary to wet it frequently during the day, especially in hot weather, when it becomes the seat of painful burning if cold water be not frequently used upon it. On account of the thickened epithelium the strongest sunlight does not annoy. The eye is closed during sleep by the drooping of a fold of skin from the upper eyelid. Long continued effort on the part of an over-developed orbicular palpebral muscle makes this hang down in front of the cornea, like a badly working window shade. In closing the eye by this maneuver the entire row of lashes are thrust in upon the cornea, but seem to be unnoticed by this torpid membrane. When foreign bodies get upon the conjunctiva they often stay for hours, until an opportunity offers to wash them off. Their presence gives no pain. Under emotional excitement he finds it necessary to use his handkerchief frequently on account of accumulation of liquid in each nostril, while the eye remains absolutely dry. As the most careful examination indicates no trace of lachrymal secretion, the source of the nasal fluid must be a hyper-secretion from the nasal mucous membrane under reflex stimulation.

In explanation of this very rare case of complete symblepharon of each eye from idiopathic cause, there must have been a general exfoliation of the entire epithelial lining of the conjunctiva at the time when the throwing off of the cuticle in various parts of the body exposed the cutis vera in open sores, to heal by the slow process of granulation and cicatrization. With an entire raw surface of both eyelids and eyeball, complete adhesion of the opposed surfaces could be readily effected, destroying the *cul de sac* from its inmost depths The patient prior to this skin eruption had had no eye disease. The continuous line of lashes in the left lids, where they have not been disturbed by excessive muscular action, shows that there had been at no time chronic blepharitis. Nor had there ever been trichiasis, that fruitful source of conjunctival atrophy, which after many years of irritation may obliterate by gradual shrinkage the conjunctival sac. The eye gave every evidence of adhesion as from the sloughing of destructive caustics.

As to treatment, no operative procedure promised much improvement. There was no mucous membrane to face the lids should they be detached from the eyeball, and no lachrymal secretion to keep the eye moist should a transplantation of mucous membrane from an animal be successfully effected. An iridectomy promised nothing, and might possibly cause an additional clouding of the small remnant of translucent cornea. Whatever was to be done, he especially desired that the little useful sight by which he made bread for himself and family should in no manner be jeoparded. The only suggestion made to him was to use daily a solution of sulphate of atropia in castor-oil. These drops would act the double part of enlarging the pupil and keeping soft and clearer the epithelially thickened cornea.

II.—*Œdema of Larynx from Lodgment of a Foreign Body; Tracheotomy. Recovery; Recurrence of Dyspnœa six weeks afterward from Formation of a Tumor in the Trachea at the Point of Incision; Breaking down of Growth under the Use of Astringent Inhalations; Recovery.* By Andrew H. Smith, M. D., of New York.

During my summer residence at Elberon I was called on August 22d to see Anne S., aged seven, who complained of hoarseness and sore throat. She stated that while eating apple-sauce the day before she felt something (presumably a bit of the endocarp) "stick in her throat," and that it had hurt her ever since.

On inspection the pharynx appeared natural. A satisfactory laryngoscopic examination was rendered impossible by the resistance of the patient. A view of both pyramidal fossæ was obtained, however, and no foreign body discovered. An emetic was given, and emollient vapors were inhaled. No improvement resulted from these means, and by the 24th the voice was entirely extinct. There was no dyspnœa, however, until the 26th, when it rapidly developed, and in twenty-four hours reached such a degree of severity that the stridor, both in inspiration and expiration, could be heard on the floor below. Dr. J. B. Hunter, of New York, who was at Long Branch, now saw the case with me in consultation, and kindly aided me in the operation which it was evident could no longer be deferred. The insertion of the canula gave immediate and complete relief. The following day, on closing the tube with my finger, I found that there was absolutely no passage for air through the larynx. Forty-eight hours after the operation there was rather sudden and very copious expectoration of muco-purulent matter from the mouth, followed at once by partial relief of the laryngeal obstruction. This relief became every day more decided, until on the eighth day the tube was removed. As the wound closed it was observed that the voice had undergone a singular and yet welcome modification. Before the operation it had always been peculiarly shrill and harsh; it was now soft and pleasant, without having lost any of its distinctness or flexibility.

Soon after her recovery it was noticed that the patient manifested a slight difficulty of respiration after severe exertion. About six weeks after the operation this developed, in the space of a few days, into a marked stridor whenever the breathing was a little hurried, and during sleep. At one time it seemed that the necessity for a second operation might occur at any moment.

The patient now submitted very readily to a laryngoscopic examination, and, after repeated and patient trials, a view below the cords was at last obtained. This revealed a growth, having the appearance and dimensions of a currant of medium size, attached apparently to the left side of the cicatrix, resulting from the operation. The growth which I saw was not large enough to occasion the degree of dyspnœa present, and probably it concealed another growth lower down.

The aspect of the case was now not of the most pleasant. The difficulty of breathing had been steadily increasing for two or three days, and it seemed probable that the growth or growths would become still larger as time went on. Tracheotomy, if called for suddenly and performed hastily, might present very awkward complications, inasmuch as any disturbance of these vascular growths would lead to abundant hæmorrhage directly into the air-passages. I therefore determined to keep the patient under close observation, and, in case there should be any considerable increase of dyspnœa, to operate without waiting for an emergency to arise, opening the windpipe with the thermo-cautery and exposing and removing the growths. Meantime I ordered an inhalation three times a day of an atomized solution of perchloride of iron, as strong as it could be borne. This was with the hope that enough of the astringent might be absorbed through the delicate investing membrane of the growths to at least impose some check upon the rapidity of development.

The next day the mother reported that there were streaks of blood in the expectorated mucus. The following morning, on waking, the patient coughed up a clot of dark blood of considerable size, and it was noticed that the breathing was easier. Three or four hours afterward I made an examination with the mirror, and found that the growth which I had seen forty-eight hours before was entirely gone. From this time the improvement in the breathing was very rapid, and in a day or two more every trace of obstruction had disappeared. A subsequent examination showed only a slight general thickening of the mucous membrane on the anterior wall of the trachea, concealing the tracheal rings, and in which the cicatrix could not be distinguished.

Whether the detachment of the growth or growths was wholly spontaneous, or whether it was influenced in some degree by the astringent inhalations, I am unable to decide. The spray provoked coughing, and the mechanical effect of this may have been favorable.

III.—*Multiple Fracture of both Thighs with Compound Fracture of Leg; Amputation; Gypsum Bandage; Recovery.*

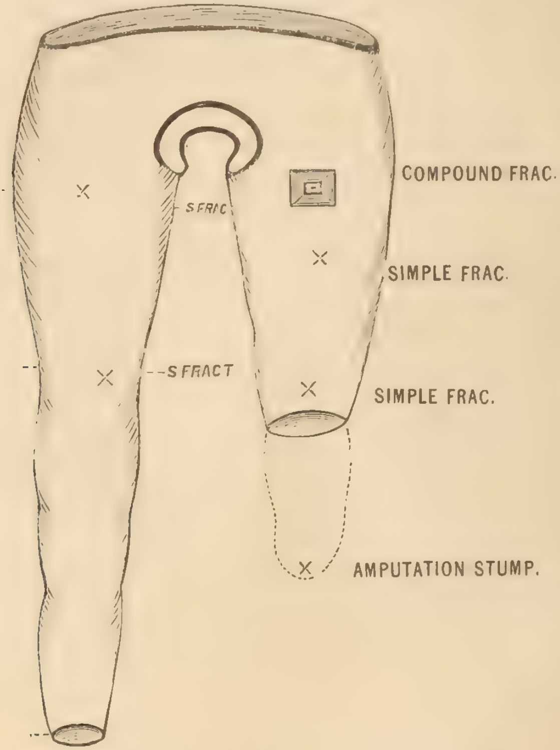
By Leroy J. Brooks, M. D., Norwich, New York.

John Allen, aged eight years, a healthy boy of Irish parentage, was seen October 3, 1878. He climbed into a wagon in motion, and in his efforts to get into the box threw his limbs across the back axle. While in this position his feet became entangled between the spokes of the wheel. The springs holding the body from being thrown forward, the legs were carried around the axle, producing the following injuries: 1. A compound comminuted fracture of the left tibia and fibula, a little below the middle of the leg; 2. A simple fracture of the corresponding thigh, just above and extending into the knee-joint; 3. A simple fracture two and one half inches above, and (4) a compound fracture at the extreme upper third of the shaft of the same thigh. The fracture at this point was oblique and the opening small; 5. The right thigh received a fracture (simple) at the upper third, and one at (6) the lower third of the shaft. Both limbs were apparently greatly shortened and were considerably deformed, but measurements, of course, were of no value. The patient was suffering from shock, and he was placed upon a pillow and stimulants were administered with opiates. Two hours after, the patient having sufficiently rallied, with the assistance of Dr. Bellows I amputated the left leg a little above the middle, making lateral skin-flaps. Wishing to save all that was possible, I risked cutting through a considerable amount of contused muscle and cellular tissue. Not wishing to continue the anæsthesia longer, the fractures were supported with thin board splints; he was bound upon a large pillow as before and one eighth grain of morphia administered. Two hours after the operation he was sleeping quietly, and had thoroughly rallied from shock.

October 4th.—A. M., pulse 140; temperature 101°. P. M., pulse 140; temperature 103°. We have kept him pretty well under the influence of morphia, but he complains bitterly when moved at all, and has frequent spasms of the muscles of both thighs.

5th.—A. M., pulse 136; temperature 102°. P. M., pulse 140; temperature 103½°.

6th.—A. M., pulse 120; temperature 102°. Suffered greatly last night from the muscular spasms and from frequent "startings," which produced great pain at the seat of the fractures. At 10 A. M. (again with the assistance of Dr. Bellows), I etherized our patient, extended the right thigh as strongly as possible, the left also being kept in position by an assistant, removed the board splints, and applied a gypsum splint in the usual way, extending from right ankle to pelvis on the right side, and from knee to pelvis on the left, thus making one solid splint. The drawing shows the splint, and I have indicated the points of fracture. We dressed the stump at the same time. There was no union, and the skin and cellular tissue had sloughed for a distance of a quarter of an inch. The stump was dressed with oakum and carbolic acid.



7th.—A. M., pulse 100; temperature 99°. A small fenestra made over opening in thigh. This opening was sealed with collodion on day of accident, and seems now to be nearly closed. Had no muscular spasms since the application of the splint, and slept quietly last night without morphia.

20th.—Since the last note, patient has progressed finely. The pulse has at no time been higher than 100, and his temperature has averaged 99°. To-day the last ligature was removed from the stump, which is entirely healed, except where the ligatures made their exit. The splint has not been disturbed, and the patient has not suffered any particular pain or discomfort from it.

November 2d.—The splint becoming a little loosened on the left side, I cut it up on the anterior surface and applied a bandage on the outside.

9th.—Removed the splint entirely to-day, and applied an ordinary bandage. There is considerable thickening of the bone at the region of the compound fracture in the left thigh, and slight curving outward. In the right thigh—with the exception of some thickening of the bone at the seat of fractures—there is no apparent deformity. The stump is entirely healed. There is some motion in the right knee-joint. Passive motion has been made in the left knee-joint since the first week, and we have succeeded in preventing anchylosis.

December 1st.—No stiffness of either knee-joint. Patient about on crutches.

Notes of Hospital Practice.

CHARITY HOSPITAL.

Transfusion.—Dr. Joseph W. Howe has recently performed in this hospital nine cases of transfusion, on patients suffering from phthisis and syphilis.

Case I.—A woman, aged twenty-four, was admitted, suffering from syphilis, and phthisis in the stage of excavation. On November 9th three and a half ounces of milk were transfused. During the operation alarming symptoms developed, but rapidly passed away. Following the operation there was marked improvement in the general symptoms, but at the end of a month she was in much the same condition as before.

Case II.—A man, aged twenty-six, entered hospital suffering from syphilis and phthisis. He had ulcerations of the mouth, pharynx, and lower extremities. The ulcerations on the extremities were surrounded with deep pigmentation. Cavities existed in both lungs.

November 16th.—Four ounces of non-defibrinated blood mixed with ammonia were injected into the median basilic vein. Four days afterward the ulcers on the legs healed over, and the pigmentation became less distinct. The strength and appetite improved.

30th. — Transfusion repeated with defibrinated blood. Three days subsequently hæmorrhage occurred from the legs.

December 10th.—Condition of the patient improving.

Case III.—A man, aged forty-six, suffered from phthisis in the third stage.

November 16th.—He was transfused with four and a half ounces of defibrinated blood mixed with ammonia. His condition was so much improved that he was enabled to leave his bed and walk about the ward.

23d.—Again transfused—improvement continued.

December 10th.—Is returning to the condition he was in when transfusion was first practiced.

Case IV.—A woman, aged twenty-four, in the last stages of phthisis, was transfused with Aveling's instrument.

November 23d.—After two and a half ounces of defibrinated blood were injected, the tube clogged up and the operation had to be suspended. The patient said she felt better after transfusion, but there were no external signs of it.

Case V.—A man, aged forty-eight, suffering from tertiary syphilis, waxy kidneys, liver, and spleen, as well as phthisis in the third stage, was selected for operation.

November 30th.—Transfusion of defibrinated blood practiced. The patient said he felt better, but, as in the former case, no signs of improvement were manifest. Death took place three days after the operation. The condition of the viscera was found as diagnosticated; no signs of thrombosis or embolism existed anywhere.

Case VI.—A woman, aged twenty-seven, a subject of tertiary syphilis, and phthisis in the stage of excavation, was transfused with an instrument consisting of a glass funnel with rubber tube and canula attached.

December 3d.—Four ounces of blood were introduced into the basilic vein without difficulty. The transfusion improved her general condition. She requested that it be repeated.

Case VII.—It was proposed to try the effect of transfusion on a man aged forty-six, who was in a moribund condition, suffering from syphilis, and phthisis in the third stage.

December 10th.—At the time of operation the patient was insensible. Two ounces and a half of defibrinated blood with ammonia were introduced. After the operation there was a marked improvement in the pulse and respiration, and the insensibility was partially relieved. At the time of report, December 11th, the patient was living.

The operation for transfusion of milk or blood is the same, and consists in opening either the internal saphenous, median basilic, or cephalic vein. The skin is pinched up and incised with a curved bistoury; the exposed vein is then secured with the forceps and opened for a fourth of an inch, and the canula inserted. The canula may be secured either by a ligature or the fingers of an assistant. In Case No. I., where milk was transfused, a goat was brought to the side of the patient and milked into a glass vessel placed in water of a temperature of 107°. In order to avoid the risk of introducing any foreign matter, carbolized gauze was used to strain the milk before passing into the receptacle.

The effect of the transfusion at first is to increase the respiration, and sometimes to stop it for a few moments, but within half an hour the immediate effect has usually passed away and the more lasting benefit ensues.

The cases operated on by Dr. Howe show, in a very satisfactory manner, what that benefit is, and it would be markedly interesting to have the records of a series of weekly transfusions extending over a lengthened period, in order to thoroughly test the procedure in cases of such a chronic nature as tertiary syphilis and the third stage of phthisis.

Inflamed Bursæ over the Ball of the Great Toe.—A female patient, aged twenty, complained of corns or bunions which, during a period of four years, rendered her unable without great pain to perform any duty requiring the use of her feet. An examination showed that the cause was inflammation of the bursæ on the outer side of the ball of either great toe. The bursæ were dissected out, and after the wound had thoroughly healed the distress was completely relieved.

In another case of a patient, of the same sex and age, it was found that the bursa had suppurated, but no improvement occurred. It was completely dissected out, and the same relief occurred as in the former case. After a period of a year no return had occurred in the second case.

PRESBYTERIAN HOSPITAL, NEW YORK.

Hæmatocele; Sloughing of the Walls of the Sac.—A man entered the service of Dr. George F. Shrady, in the Presbyterian Hospital, with an oblong scrotal tumor measuring twenty-six inches in its lateral diameter by twenty-two inches in its antero-posterior. The patient was a baker, fifty-three years of age. He noticed, four years previously, a hard and painless swelling in the right scrotum, which increased slowly till three months before admission, at which time it began to grow rapidly. He presented himself at a dispensary and had the tumor tapped, five or six quarts of a bloody fluid being removed. Five weeks after this operation he entered hospital. The tumor was as has been described. A careful examination showed that there was a double hernia as well as gas and fluid in the scrotum. The presence of gas independent of the hernia was obvious from the fact that the succussion sound was obtained, and, moreover, the air and fluid adapted themselves on a change of position of the tumor in a manner much more rapidly than if fluid and floating intestine had been present. Aspiration was performed, and there was obtained a fluid of a very offensive odor and of a brown color. An incision six inches in length was then made, and six quarts of extremely fetid pus were withdrawn. The right testicle was enlarged and incorporated with a mass of fibrous material; the left was normal. The inside of the sac was lined with concentric layers of organized fibrine which were in a sloughing condition. A counter-incision was made in the scrotum and a drainage-tube inserted. After evacuation of the fluid, the scrotum was sufficiently large to fill a wash-basin in which it was supported. Two months after operation the scrotum was five or six inches in diameter.

The case illustrated in a very striking manner the necessity of an early diagnosis and prompt treatment. The patient could not give a very intelligent account of the origin and progress of his trouble, and the diagnosis was arrived at from an objective rather than a subjective point of view. The suspicions were very strong toward hæmatocele from the start. In the first place, the tumor seemed to enlarge too rapidly for a return of simple hydrocele; secondly, there was the history of considerable pain; thirdly, there were want of translucency and a peculiar hardness of feel of the scrotum; and fourthly, there were œdema of the scrotum and the presence of gas in the tunica vaginalis. All these symptoms looked toward hæmatocele which was in a state of decomposition. Aspiration and the escape of an intolerably fetid fluid confirmed the latter suspicion, and left no other course to be pursued than the freest possible evacuation of the contents of the sac. It is doubtful whether the patient could have tolerated much longer the presence of six quarts of decomposing fluid in the tunica vaginalis. As it is, he had a narrow escape from septic poisoning, and was fortunate in being able to withstand the depressing effects of the exposure of such a large sloughing surface and the protracted and profuse discharges which were the necessary consequences of granulation and final closure of the wound. Strange to say, however, the patient went on to recovery without a bad symptom. The hydrocele is of course radically cured by the complete obliteration of the sac.

Proceedings of Societies.

AMERICAN DERMATOLOGICAL ASSOCIATION.

(Continued from December number.)

He was formerly disposed to think, from the writings of Geber and Kaposi, that the tumors were really epithelioma, or of a malignant character. But, from the investigations of his friend Dr. Heinemann, a microscopist of high reputation, he had come to understand that they were simply inflammatory growths of the skin, caused by the augmented vascularity of the part, and largely made up of the increased number of blood-vessels. This point, he considered, had a very important bearing on the prognosis.

We come next, he continued, to the later developments of the disease. The case which Dr. Heitzmann had reported was, he thought, older than any of his, and he was inclined to believe from it that this affection, in its severe form, really predisposes patients to malignant growths about the face. This, however, was only a suggestion, and he thought that the matter must remain *sub judice* for the present.

Such was the clinical history of the disease, and he would now say a word as to its course, as it had been observed in different individuals. It seemed to be an affection which might end in early life without any great disfigurement (except a certain amount of permanent pigmentation), or it might be of an inveterate character. The disfigurement might make the patient hideous for life, or, on the other hand, it might be very slight.

Finally, as to the proper title by which to designate it. It had been seen that the disease was certainly not a xeroderma, since only when the atrophy is very well marked do we find anything like parchment-skin. (When this was present, the sebaceous glands of the part had probably been entirely destroyed.) It certainly seemed very improper, then, to call it xeroderma, which name was only applicable to a feature of the atrophic form. Besides, the name xeroderma had been already employed for years to designate another affection. He contended, therefore, that we should not any longer attempt to bolster up this inappropriate title. The whole disease, as he thought he had conclusively shown, was really an affection of the blood-vessels, and we had a term which would exactly express the condition met with in it, viz., *angioma*. Then, in order that its secondary results might be indicated, he would suggest that the adjectives *pigmentosum* and *atrophicum* should be added to it; so that the whole name would read, *angioma pigmentosum et atrophicum.*

During Dr. Taylor's remarks he exhibited a number of photographs of his different cases, and at their conclusion presented microscopical specimens from some of them.

Dr. HEITZMANN said that he could not refrain from saying that the thorough manner in which Dr. Taylor had studied and followed up the disease was deserving of the highest praise. His own case, to which Dr. Taylor had alluded, and which was still under treatment, was the oldest of all those that he had seen. The spots had not been pigmented deeply, but the result was unfavorable, inasmuch as a tumor (epithelioma) occurred, on which he had already operated five times with the sharp spoon. Dr. Taylor thought that the angioma was the primary lesion of the disease; but neither in his case nor in Dr. Duhring's was this fact evident. The first thing that he had observed was certainly the pigmentation; but, still, he was willing to grant the correctness of Dr. Taylor's observations, as these were old cases, too old for the decision of such a point.

From what he had observed of the disease he could not but think that the latter had been right last year, when he was of the opinion that there were two forms of tumors, and that, consequently, he had made a mistake now, in supposing that there was really only one. In his own case there were both angioma and tumors of epithelial character. In the latter there was a papillary new growth, raised above the surface, on which a crust formed; after which it became moist, and an ulcer was produced. The final result was what we ordinarily know as flat cancer of the face. He was, therefore, disposed to adopt the view of Kaposi, that the disease ends in epithelial cancer. The prognosis in his case, however, he thought was favorable, as he had not found it necessary to operate for more than a year now, and the patient was still doing remarkably well. He was certainly glad to get rid of the title, xeroderma of Hebra.

Dr. TAYLOR thought that Dr. Heitzmann would agree with him that, in Dr. Duhring's case, while the pigmentation was present, there were no red spots, because the disease was not now in an active state, having ceased years ago, the girl now being seventeen. The same was true in one of his own cases. (Photograph exhibited.) He was still disposed to think that the two forms of tumor were really the same, but that, when they occurred about the face, the epithelium was more readily thrown off, and hence ulcerations resulted. He would not deny that the disease might eventually lead to cancer; but this, he believed, occurred later in life. That the tumors in his cases were not flat cancer seemed demonstrated by the microscopical specimens from them, prepared by Dr. Heinemann, which he had just presented to the association. If there are any epithelial elements present, he had not been able to find them, and he would like to have the opinion of the microscopists present on the matter.

Dr. Duhring remarked that he was by no means positive as to the order of the two lesions, the pigmentary and the angiomatous; saying that it was a point which he had endeavored to determine by long observation in his own case, but had not been able to do so satisfactorily. There, it seemed to him, however, that the pigmentation came first, since only freckles were originally observed. Moreover, at the present time, there was upon the breasts a very delicate pigment deposit, without any signs whatever of capillary hyperæmia. On the backs of the hands, on the contrary, there were angiomatous spots, without any pigmentation, and the patient stated that there never had been any there. His case, he would mention, was of remarkably mild type.

Dr. Taylor was of the opinion that Dr. Duhring's case had expended itself in early life, as the patient was now seventeen years old, and that it consequently did not afford a fair comparison with his cases in children. When questioned as to the early history of the affection, the mothers of his patients all united in saying that the children looked at first as if they were much sunburnt, and in two instances a physician was called in when the affection first made its appearance, and pronounced it measles. He did not depend on these statements, however, but rather on his own close observations. Some of the red spots were so minute that they could be seen only in a strong light, and when looked for with the greatest care. Was it not reasonable to suppose, therefore, that if the deeper vessels were involved the red spots might not be seen, and only the resulting pigmentation observed? Having seen the lesions in children (both in their initial state and during their whole course), he thought he was perfectly right in making the statement that he had. He had followed the cases closely, and had seen red spots replaced by brown ones. It was not necessary to have the well-defined red spots; it might be, as he said, very faint indeed, due perhaps to the deep-seated condition of the blood-vessels, or thickness of the overlying epithelium.

Dr. **Heitzmann** stated that he had now examined the specimens prepared by Dr. Heinemann. Although he did not approve of Canada balsam (which was used here) for mounting, he acknowledged that the appearances were very different from those seen in his own case, and said that the tumor was doubtless an angioma, conjoined with myxoma, or, in other words, a myxo-angioma. He now fully agreed, therefore, with Dr. Taylor that there was a new formation present.

Dr. **Piffard** said that in some of Dr. Taylor's cases the tumors presented the character of rodent ulcers in older persons, and that they seemed to him to be semi-malignant in nature, and allied to some forms of cancer. He would, therefore, suggest that their removal would be advisable. In the microscopical specimens presented, there was a cavernous element, and another feature was the myxomatous element. In addition, there are collections of material such as we find appearing frequently in mammary cancer, viz.: a framework of connective tissue with small cells diffused through it. Many of the best pathologists of the present day, he said, believe that all cancers are really epithelioma, although in its more restricted sense the term epithelioma was still confined to cancers of the surface in which we find the onion-like bodies.

We had here, then, he thought, beside the pigment-deposit, a myxomatous development, and thirdly, cavities. He believed that this other development, which resembled cancer, confirmed what he had said eighteen months before, that the disease was really semi-malignant in character.

It was an important point to determine whether the pigmentation developed from the hyperæmia present or not. This was certainly the case in many other diseases, and he thought it highly probable here. Pigment-spots are generally believed to be permanent, and this was undoubtedly the case in many instances, but was not always so. It would be interesting, he thought, to find out why they should be permanent in some cases and not so in others. What, then, was this pigmentation?

Melanine was the coloring matter distributed in the eyes and in the hair, and it was deposited in minute granules. The coloring matter of the blood was not the so-called *hæmatine* of twenty years ago; but *hæmoglobine* had now been determined to be its true coloring matter, and this latter substance was capable of crystallization. *Hæmatine* proper, as now understood, was not crystalline, but granular, according to Preyer, of Jena. The pigment following eczema and similar affections was probably granular *hæmatine*, and usually resulted from long-continued hyperæmia. It would seem, then, that in this affection also the pigmentation was due to *hæmatine*. If, on the other hand, it should be found to result from the presence of *melanine*, we should have to look for some other explanation of the process of its formation. The discoloration here resembled melanosis, except that the pigmentation was confined to the epidermis, which was not the case in melanosis.

Dr. ATKINSON remarked that he was not able to make out any carcinomatous element in the specimens presented. He would like to ask Dr. Piffard whether any light was thrown on the pathological process in the disease by the character of the pigmentation observed.

Dr. PIFFARD replied that in this disease there was no pigmentation whatever in the connective tissues. There was no way of differentiating *melanine* from *hæmatine* except by chemical analysis, and that would be a very difficult matter.

On account of the pressure of time, a paper by the President, Dr. WHITE, on "A Case of Recurrent Cutaneous Hæmorrhage, with Urticarial and Bulbous Efflorescence," was read only by title, and the committee on classification and nomenclature then made their report through the president.

In presenting it, Dr. White stated that, at a session of the dermatological section of the late International Medical Congress, and also in his first annual address before the present association, he had called attention to the great importance of this matter, and that at the last meeting of the association a committee had been appointed to take charge of it. The committee met at that time, and decided to adopt Hebra's classification, with such modifications as might be deemed expedient. In the months that followed, a brisk correspondence had been kept up between the various members of the committee, and during the present meeting of the association they had come together to settle disputed points by personal conference. Every possible leisure moment had been devoted to this object, and all the members had willingly sunk their individual opinions when called upon to do so by the will of the majority. Nothing like perfection was claimed in the classification and nomenclature about to be presented; but it was to be remembered that this was a standing committee, and in the course of a number of years it was hoped that as perfect a system as possible would be evolved. He would only say that the committee could conscientiously recommend their present attempt as the result of the most earnest, thoughtful, and continuous efforts on their part. It aimed, first, to reduce the number of groups in Hebra's classification, and secondly, to strike out a number of subdivisions from it, while transposing others to more appropriate places. The system was more simple than Hebra's, and yet broad enough to embrace every special variety of disease. It was as follows:

Classification and Nomenclature of Skin Diseases adopted by The American Dermatological Association, *August 29, 1878.*

Class I. Disorders of the Glands.

1. *Of the Sweat Glands.*
    - Hyperidrosis.
    - Miliaria crystallina.
    - Anidrosis.
    - Bromidrosis.
    - Chromidrosis.
2. *Of the Sebaceous Glands.*
    - Seborrhœa: *a.* oleosa; *b.* sicca.
    - Comedo.
    - Cyst: *a.* Comedo; *b.* Wen.
    - Molluscum sebaceum.
    - Diminished secretion.

CLASS II. INFLAMMATIONS.

Exanthemata.
Erythema simplex.
Erythema multiforme: *a.* papulosum; *b.* bullosum; *c.* nodosum.
Urticaria.
[1] Dermatitis: *a.* traumatica; *b.* venenata; *c.* calorica.
Erysipelas.
Furuncle.
Anthrax.
Phlegmona diffusa.
Pustula maligna.
Herpes: *a.* facialis; *b.* progenitalis.
Herpes zoster.
Psoriasis.
Pityriasis rubra.
Lichen: *a.* planus; *b.* ruber.
Eczema: *a.* erythematosum; *b.* papulosum; *c.* vesiculosum; *d.* madidans; *e.* pustulosum; *f.* rubrum; *g.* squamosum.
Prurigo.
Acne.
Impetigo.
Impetigo contagiosa.
Impetigo herpetiformis.
Ecthyma.
Pemphigus.

CLASS III. HÆMORRHAGES.

Purpura; *a.* simplex; *b.* hæmorrhagica.

CLASS IV. HYPERTROPHIES.

1. *Of Pigment.*
   Lentigo.
   Chloasma; *a.* locale; *b.* universale.
2. *Of Epidermal and Papillary Layers.*
   Keratosis: *a.* pilaris; *b.* senilis.
   Callositas.
   Clavus.
   Cornu cutaneum.
   Verruca.
   Verruca necrogenica.
   Xerosis.
   Ichthyosis.
   Of Nail.
   Hirsuties.
3. *Of Connective Tissue.*
   Scleroderma.
   Sclerema neonatorum.
   Morphœa.
   Elephantiasis Arabum.
   Rosacea: *a.* erythematosa; *b.* hypertrophica.
   Frambœsia.

CLASS V. ATROPHIES.

1. *Of Pigment.*
   Leucoderma.
   Albinismus.
   Vitiligo.
   Canities.
2. *Of Hair.*
   Alopecia.
   Alopecia areata.
   Alopecia furfuracea.
   Atrophia pilorum propria.
3. *Of Nail.*
4. *Of Cutis.*
   Atrophia senilis.
   Atrophia maculosa et striata.

CLASS VI. NEW GROWTHS.

1. *Of Connective Tissue.*
   Keloid.
   Cicatrix.
   Fibroma.
   Neuroma.
   Xanthoma.

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[1] Indicating affections not properly included under other titles of this class.

2. *Of Vessels.*
    - Angioma.
    - Angioma pigmentosum et atrophicum.
    - Angioma cavernosum.
    - Lymphangioma.
3. *Of Granulation Tissue.*
    - Rhino-scleroma.
    - Lupus erythematosus.
    - Lupus vulgaris.
    - Scrofuloderma.
    - Syphiloderma: *a.* erythematosum; *b.* papulosum; *c.* pustulosum; *d.* tuberculosum; *e.* gummatosum.
    - Lepra: *a.* tuberosa; *b.* maculosa; *c.* anæsthetica.
    - Carcinoma.
    - Sarcoma.

CLASS VII. ULCERS.

CLASS VIII. NEUROSES.
- Hyperæsthesia: *a.* pruritus; *b.* dermatalgia.
- Anæsthesia.

CLASS IX. PARASITIC AFFECTIONS.
1. *Vegetable.*
    - Tinea favosa.
    - Tinea trichophytina: *a.* circinata; *b.* tonsurans; *c.* sycosis.
    - Tinea versicolor.
2. *Animal.*
    - Scabies.
    - Pediculosis capillitii.
    - Pediculosis corporis.
    - Pediculosis pubis.

In conclusion, Dr. WHITE stated that the committee would recommend the following resolution: That, by a vote of the members, this system of classification and nomenclature be adopted as the official code of our association; which we as members agree to conform to, and which shall be altered as occasion may require, by the association only after consideration by this standing Committee on Classification and Nomenclature.

On motion of Dr. FOX, the report of the committee was accepted.

On motion of Dr. PIFFARD, the matter of Classification was taken up first, and Dr. Piffard then stated that he was opposed to any one system of classification, and thought that there should be as many as possible in our literature, as it was important to have diseases presented in all their various relations.

After further discussion by Drs. FOX, WIGGLESWORTH, HEITZMANN, SHERWELL and TAYLOR, the classification recommended by the committee was adopted with one dissentient voice. A short debate then took place on the question of Nomenclature; when that recommended by the committee was adopted by the following vote, the ayes and nays having been called for: affirmative, Drs. Atkinson, Duhring, Heitzmann, Taylor, Van Harlingen, and Wigglesworth; negative, Drs. Fox, Piffard, and Sherwell.

The President then made the following valedictory remarks: Gentlemen—In vacating the position with which you have honored me for two years, I desire to express to you all my gratitude for the great consideration you have uniformly shown me. The interest taken in our meetings and the high order of merit which has characterized the papers presented assure the success of the association; and, if it shall continue to be conducted in this spirit, there can be no doubt of its influence on the future of dermatology in this country.

It is my final and pleasant duty to present, as our president for the ensuing year, a gentleman who needs no introduction wherever American dermatology is known—far less to yourselves.

Dr. Duhring, in assuming the chair, returned his thanks to the association for the honor conferred upon him, and said that he would do all in his power to advance the interests of the association. To this end he invited the hearty coöperation of all the members in the work before them, and he hoped that the meeting of 1879 would call forth their best efforts in scientific research, while at the same time it should still further increase their ties of friendship.

The association then adjourned.

(To be concluded.)

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Adjourned Annual Meeting, November 25, 1878.

Dr. John C. Peters, President.

The officers elected for the ensuing year are: President, Dr. F. J. Bumstead; Vice-President, Dr. A. E. M. Purdy; Recording Secretary, Dr. F. A. Castle; Corresponding Secretary, Dr. Wesley M. Carpenter; Treasurer, Dr. H. P. Farnham; Censor, Dr. P. F. Mundé.

The Society went into Committee of the Whole to consider the proposed amendments to the by-laws. They were approved and subsequently adopted by the Society.

Reports of standing committees were then read, the most important of which was the Committee on Hygiene, Dr. E. G. Janeway, Chairman. Dr. Janeway referred to the fact that only two deaths had occurred from small-pox during the year, and thought it could properly be attributed to the persistent efforts which had been made in obtaining a thorough vaccination. He thought that greater success attended the persuasive than the compulsory method of vaccination, for the reason that it would only be required in primary vaccinations and would be valueless in revaccinations, which were very important.

Address of the Retiring President.

The President in his closing address said that the Society had been very successful in correcting many abuses, chief of which were in regard to the issuing of counterfeit diplomas and the recommendation of nostrums. He considered it strange that so many teachers in medical colleges were the offenders. It was only just to them, however, to state that after proper representation to them their recommendations were withdrawn.

The wholesale houses had also coöperated, but the smaller dealers had been most obstinate.

He suggested that efforts should be made to procure proper legislation in regard to the certificates of midwives. The present system permitted those not properly qualified to practice. Dr. Peters then introduced the president-elect, Dr. F. J. Bumstead.

A vote of thanks to the officers of the Society for the past year was adopted.

Stated Meeting, November 25, 1878.

Dr. F. J. Bumstead, President.

The President in his address drew special notice to the fact that in his opinion the Society should chiefly devote itself at the stated meetings to the reading and discussion of scientific matters. Other subjects could be better considered by committees and special meetings, as they were secondary and had only an indirect influence, inasmuch as the Society was organized to aid in the regulation of medical practice and the diffusion of information pertaining to the healing art.

The following standing committees were announced:

Hygiene: Chairman, Dr. John C. Peters; Dr. E. G. Janeway, Dr. C. C. Lee, Dr. G. B. Fowler, Dr. A. B. Judson.

Ethics: Chairman, Dr. Robert A. Barry; Dr. R. J. O. Sullivan, Dr. F. Zinnser, Dr. S. Caro, Dr. F. V. White.

Registration: Chairman, Dr. A. E. M. Purdy; Dr. W. T. White, Dr. Horace T. Hanks.

Prize Essays: Chairman, Dr. Fordyce Barker; Dr. Austin Flint, Dr. Ellsworth Elliot.

Auditing: Chairman, Dr. Ellsworth Elliot, Dr. W. M. Chamberlain.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, November 27, 1878.

Dr. A. C. Post, Chairman.

Correction.—The case of excision of the head of the femur for intra-capsular fracture, reported in the last number of the "Journal," should be credited to Dr. Joseph W. Howe instead of Dr. James W. Howe.

Pyonephrosis in Wandering Kidney; Formation of Urinary Fistula.—An interesting case of pyonephrosis in a wandering kidney was presented to the Society on behalf of a candidate. It was specially worthy of note from the fact than an artificial fistula was formed for the removal of the urine excreted by the affected kidney. The history of the case was as follows: A woman, aged forty-four, was attacked seven years previously with severe pain in the left lumbar region, which lasted two days. These attacks returned each year. During May, 1878, a chill came on, accompanied with pain in the side and bloody urine. The physician in attendance at the time thought that the symptoms indicated nephritis. There was but little improvement for two months. At the end of that time, however, the urine became clear, but the pain in the side remained unchanged. On July 20th a tumor was recognized in the left hypogastric region. This gradually increased till August 3d, when the case came under the care of the candidate.

On examination, a tumor the size of a man's head and of irregular contour was discovered on the left side, between the free margin of the ribs and the crest of the ilium. The spleen was found in normal position immediately above the tumor. On August 4th an aspirator needle was introduced and eight ounces of pus withdrawn. After a careful consideration of the case, a diagnosis of pyonephrosis of a wandering kidney was made, and on the following day it was decided to explore the tumor more thoroughly. After having pressed the mass backward and outward it formed a bulging prominence in the lumbar region. The object of this procedure was to avoid wounding the peritonæum in the subsequent operation. An incision was made over the anterior border of the quadratus lumborum, when the tumor was reached. It was then opened and a large amount of pus evacuated. On introducing the finger, the interior was found lined with what seemed to be mucous membrane. The renal calices could readily be made out above. Considerable hæmorrhage occurred and was with difficulty controlled. Subsequently the cyst wall was secured to the integument by sutures, and drainage-tubes inserted. After the cyst was thoroughly washed out with a solution of thymol, the patient was put to bed; but in a short time hæmorrhage returned, and was so abundant as to cause syncope. The source of the hæmorrhage was the pelvis of the kidney in the neighborhood of the calices. It was controlled with much difficulty by filling the renal calices with pieces of ice, and making pressure on the sac by means of an abdominal bandage with a tampon in the wound.

Following the operation the pulse was 160, with marked depression, which was very much increased by the persistent vomiting. Recovery took place slowly, a portion of the wound sloughed, and the resulting cicatrization was gradual.

The patient was able to leave her bed in five weeks. The urine of the right or healthy kidney was more copious than that of the left. A large tube was introduced through the opening with the expectation of forming a permanent fistula, and through this tube the discharges were removed by frequent washings. At the time of report the patient was able to move about without discomfort.

Myxo-sarcomatous Tumor.—Dr. T. E. SATTERTHWAITE presented on behalf of a candidate a myxo-sarcomatous tumor of the thigh, which had been removed from a man aged fifty-six years. It was first noticed five months previously, and at that time was the size of an egg, and situated on the front of the left thigh immediately below Poupart's ligament. The tumor steadily increased for five months, and during the past month pain was complained of for the first time. On examination, the growth was found to be superficial to the vessels of the thigh, and measured twelve inches in one diameter by eight in the other. The skin was movable over it except at a point near the center. The operation for removal was performed October 25th, and consisted in carefully dissecting it out under the antiseptic spray.

The wound was completely healed by October 30th. The tumor was a myxo-sarcoma, and contained one large and several smaller cysts filled with blood. A microscopical examination showed it to be made up of a gelatinous material, consisting of reticular connective tissue, and a solid portion formed of fibrous tissue with an abundance of spindle-shaped corpuscles.

Sub-Periosteal Excision of Humerus.—Dr. JOSEPH W. HOWE presented a specimen of necrosed humerus which he had removed from a child three years of age at Charity Hospital. The disease began a year previously with pain and swelling of the upper part of the arm, and stiffness of the shoulder-joint. There was no history of injury. An examination with the probe gave evidence of dead bone extending down the greater part of the arm, and destruction of the shoulder-joint. An incision was made extending from the acromion process to within an inch of the elbow. The periosteum was then cut through, and the upper four fifths of the humerus removed.

The wound healed readily, and three weeks after the operation evidences of new bone were apparent. Eventually the child recovered, with a firm humerus and free motion at the shoulder-joint.

Dr. Post had seen several cases of necrosis of the humerus, but in none of them was the shoulder joint involved.

Mucous Patches in the Larynx.—Dr. Beverley Robinson presented specimens taken from a man who died from pericarditis and nephritis. The special interest of the case was the existence of mucous patches in the larynx, which in his experience was very rare.

Correction of Deformity of Hand.—Dr. A. C. Post related an interesting case of deformity of the hand resulting from an injury. A child, eight months of age, fell against a stove and burned its hand. Dr. Post saw the case after sixteen months, and at that time the thumb was bent acutely upon the palm of the hand and attached by its extremity to the base of the little finger. The distal phalanx of the index-finger was luxated backward at an angle of forty-five degrees. The operation consisted in separating the attachment of the thumb by extensive dissection and bringing it into position. It was necessary to exsect a portion of the metacarpo-phalangeal articulation to accomplish this. A similar operation of exsection was performed on the luxated joint of the index-finger, and the hand placed in a felt splint.

Stated Meeting, December 11, 1878.

Dr. John C. Peters, President.

Tubercular Meningitis.—Dr. V. P. Gibney presented on behalf of a candidate specimens of bone removed from the ear of a boy, aged thirteen, who died from tubercular meningitis. He was seen at the Northwestern Dispensary, and suffered from severe frontal headache. The history obtained from him was that he had been in ordinary health till he reached the age of seven, when he was attacked with measles, followed by otorrhœa of an intermittent character. The mental condition was more or less dull, but permitted him to attend school.

November 18th.—Severe left frontal headache, coming on suddenly.

19th.—Pain continued. Had short naps, but awoke each time with a cry, caused, as he said, by the intense pain.

21st.—Pain continued, suddenly changing from the left to the right, and again to the left.

22d.—Seen for the first time at the Dispensary. Countenance indicated much suffering. Marked photophobia. On examining the left ear, chronic otitis media was noticed, but there had been no otorrhœa for the past ten days. The pupils were normal, and reacted to light.

25th.—Condition not changed. Had two attacks of coma, lasting fifteen minutes and half an hour respectively.

26th.—Coma increased.

29th.—Coma profound.

30th.—Death took place.

Post-mortem Examination.—The calvarium was thinner than normal. The dura was adherent over the petrous portion of the left temporal bone and in the zygomatic fossa. In the fissure of Sylvius on the left side there was an abundance of lymph, with granular bodies along the course of the vessels, but no cerebritis or extravasation of blood. The bone over the left internal ear was translucent and bluish. The cavity was twice as large as that of its fellow of the opposite side. The bone was necrosed, but as far as could be discovered there was no connection between the diseased bone and the meningitis.

Strangulated Hernia; Diagnosis between Hernia and Enlarged Gland.—Dr. Alfred C. Post presented a portion of omentum which had been removed from a patient who had been operated on for strangulated hernia. He was called in consultation on December 3, 1878, to see a lady, aged thirty-seven, who was under the care of Drs. Quimby and Kiersten, of Jersey City. She had a reducible hernia for twelve years, and for six days before the consultation she was unable to reduce it. There was constipation, but not complete, and vomiting, but not of a stercoraceous character. The tumor was hard, painful, and tender on pressure; it was of an ovoid form, and extended from the pubes to the anterior superior spinous process of the ilium. It was situated above Poupart's ligament, but did not extend into the labium. There was no resonance on percussion.

Reduction was attempted while the patient was under the influence of ether, but without success. Considerable difficulty was found in the diagnosis, as the form and the firmness of the tumor seemed to indicate the existence of an inflamed lymphatic gland, while the clinical history pointed to hernia. After deciding to make an exploratory incision, Dr. Quimby cut down upon it cautiously, till a sac was reached which contained a mass of omentum, deeply congested, but not softened or gangrenous. The protruding omentum was removed with the scissors, and the stump, after treatment with a solution of carbolic acid, was carried into the abdomen. Tents were introduced into the wound, extending into the abdomen, so that any discharge occurring would have an exit.

Dr. Quimby reported that the patient suffered considerable pain on the day following the operation, but that subsequently the recovery was rapid.

Dr. Post said that the omentum was excised because it was thought unwise to return it in the deeply congested condition in which it was.

Dr. Briddon had seen three cases in which much difficulty was found in making a diagnosis between adenitis and hernia. The first case was a German woman, who had been treated by a druggist for seven days under the impression that inflammation of the bowels was present. When she was seen by Dr. Briddon there was vomiting, but not of the stercoraceous variety. A tumor was found under Poupart's ligament that presented the external characteristics of suppurating bubo. It was not mobile. An incision was made into it and a hernial sac reached. This contained fetid serum. The gut was of a deep maroon color, and was evidently approaching the state of gangrene, though there was not the ashen hue characteristic of that condition. The stricture was divided and the hernia returned. The patient did well for nine days, when she took an ounce of cream of tartar, which not only produced a natural passage, but also one through the opening in the groin. The subsequent recovery was rapid.

The second case was one of a variety of hernia, described by Dr. Partridge of London. An Italian woman suffered for some time from partial intestinal obstruction. When she came under observation there seemed to be an abscess under Poupart's ligament. Upon incision pus was found, and in the abscess the perforated intestine was discovered. At the bottom of the cavity the vermiform appendix was seen. Fæces escaped from the wound during and after the operation. The patient recovered.

The third case was one of enlarged gland. A physician asked Dr. Briddon to see his son, whom he considered to be suffering from strangulated hernia. A tumor was found over the saphenous opening. The condition of the patient did not resemble a case of strangulated hernia, although it was stated that the tumor made its appearance within an hour, and was accompanied by pain. An exploratory incision was made, and when the cribriform fascia was reached the appearance closely resembled that of hernia, but, on continuing, an enlarged gland the size of a hickory nut was enucleated.

Dr. Post had found cases of enlarged inguinal glands in which pain and vomiting were present.

Excision of Knee-Joint.—Dr. Erskine Mason presented a photograph of a man showing the condition of the knee previous to excision of the joint, as well as the patient himself three months after the operation had been performed. The patient was thirty-six years of age. Six months before admission to Bellevue Hospital he was cut with an axe in the lower part of the thigh. Shortly afterward a swelling appeared near the site of the injury, and was opened. There came from it dark-colored fluid but no pus. When examined in hospital an opening was found at either side of the joint, and on introducing the probe dead bone was found. It was first thought that there existed bony anchylosis, but when placed under an anæsthetic this was found not to be the case. Exsection was performed September 25, 1878, and the limb placed in a plaster-of-Paris dressing. The patient did well after the operation, and at the seventh week was able to move about. When presented to the Society the man had a serviceable leg. There was yet, however, a small sinus, which had its origin in a carious piece of bone. He was able to walk with the aid of crutches from Bellevue Hospital to the Society, a distance of over half a mile.

Cancer of the Breast.—Dr. ALFRED C. POST presented a specimen of cancer of the breast which was removed from a woman aged sixty-five. She was admitted into the Presbyterian Hospital November 18, 1878. The tumor first appeared five months previously, and continued to increase till its removal. The nipple was retracted, but the mamma was not adherent to the skin or subjacent tissues. The lymphatic glands were not affected. In excising the tumor a strip of skin two inches wide was removed. The wound healed readily.

Novel Plastic Operation of Cheek.—Dr. GEORGE F. SHRADY presented a tumor of the cheek which he had removed. The special point of interest in regard to it was the means taken to fill up the loss of skin consequent on removal of the tumor, which included the overlying integument. During April, 1877, a man, forty-three years of age, entered the Presbyterian Hospital, with a small tumor imbedded in the right cheek. He came under the care of Dr. Detmold, who removed the growth through the buccal cavity. Shortly afterward it re turned, and in November, 1878, he again entered the Presbyterian Hospital and came under the charge of Dr. Shrady. The tumor was the size of a horse-chestnut, and was attached to the anterior edge and external aspect of the masseter muscle, as well as to the malar bone. It involved the skin, buccinator muscle, and mucous membrane of the mouth. The operation for its removal was performed November 25th, and consisted in including the growth in a quadrilateral incision one and a half by two inches. It was necessary to carry this through the cheek and down to the malar bone. There did not appear to be any direct connection of the tumor with the bone. The hæmorrhage attending the operation was very free, but was easily controlled. A sponge was inserted into the mouth, to prevent the blood from passing into the trachea. The important point in the operation was the method pursued in filling the square space, and which was the suggestion of Dr. A. C. Post. A curved flap was dissected up from over the angle of the jaw and side of the neck, and slid forward till the whole of the gap was filled up. It was formed by continuing backward, in a curved direction, the anterior and posterior sides of the square till they terminated behind and below the ear. The dissection was accomplished without difficulty, although considerable care was exercised in avoiding injury to the external jugular vein. When the flap was slid forward and stitched into place it filled the space completely, without causing tension at any point. Horse-hair was introduced at the lower angle of the flap, and the whole wound healed by first intention, except where the horse-hair caused drainage. Dr. Shrady said the scar was scarcely visible at any part, and the direction was such that the beard would completely cover it. A microscopical examination of the beard showed it to be an adenoma.

Dr. Post said that a flap curved in the manner described by Dr. Shrady permitted gliding without causing tension and retraction of the sides, which would result if it were straight.

Dr. Howe wished to know if there was any special indication for the horse-hair. It seemed to be the only drawback in the healing of the whole wound by first intention. He thought it would have been better to run the risk of any exudation of blood and subsequent abscess, as plastic wounds on the face usually healed by first intention.

Bibliographical and Literary Notes.

Art. I.—*The Principles and Practice of Surgery, being a Treatise on Surgical Diseases and Injuries.* By D. Hayes Agnew, M. D., LL. D., Professor of Surgery in the Medical Department of the University of Pennsylvania. Profusely illustrated. In Two Volumes. Vol. I. Philadelphia: J. B. Lippincott & Co., 1878. Pp. 1,062.

This volume is announced as the first part of a work on the principles and practice of surgery. We are not surprised at the extraordinary bulk when we consider the vast field from which the author has gathered his materials. We only doubt the ability of any single author to compass such a task with credit to himself and with advantage to the profession. There is a growing disposition among the ablest surgical writers to combine their efforts when a systematic treatise is to be produced. We sincerely hope that this method will more and more increase in favor, and that all authors who aspire to the production of systematic treatises on surgery will call to their aid expert writers in various departments in which they are not themselves specially skilled. This plan of giving the impression of the highest authority to every subject treated is what lends a peculiar charm and value to the French surgical dictionaries and to such systems of surgery as those of Pitha and Billroth and Holmes. It is by this means that the latest edition of Cooper's "Surgical Dictionary" has been brought fully up the present standard, and we are pleased to notice that the new edition of Gant's "Surgery" has been conspicuously improved by writers on special branches. We are the more impressed with the value of such assistance in the present work by the frank but apologetic acknowledgment of the author that "most of the pages have been written in hours stolen from the time usually allotted to the repose of body and mind, and after the daily labors of an exacting public and private practice." We can scarcely believe that any surgeon of our day has attained to that eminent mastery of the art as well as the science of surgery which will enable him, even in hours of leisure, to prepare a systematic work on the principles and practice of surgery worthy of the rank and position of the works which adorn the literature of French, German, and British surgery. Nor can we let this remark pass without protesting, in the interest of the infant surgical literature of this country against the too common habit of those who occupy high and responsible positions, of giving to their contributions only the hours of exhaustion. We shall not stop to answer the question so generally put by the reviewer, viz., "Is there need of such a work as this?" It may be taken for granted that a veteran teacher like the author sees from his more elevated standpoint a mission for a new treatise on surgery. We turn, therefore, to the more agreeable task of examining the contents of the volume. Looking over the table of contents, which is like viewing the exterior of a building to determine its general architectural features, we note that the work lacks that symmetry or orderly arrangement of subjects so essential to a systematic treatise. The chapters run thus, after an introduction on surgical diagnosis: I. Inflammation; II. Wounds; III. Injuries of the Head; IV. Injuries of the Chest and Abdomen; V. Wounds of the Extremities; VI. Diseases of the Abdomen; VII. Diseases and Injuries of the Blood-vessels; IX. Surgical Dressings; X. Injuries and Diseases of the Osseous System. It will be seen at a glance that after the fourth chapter subjects are selected at random, the most noticeable displacement being the ninth, which treats of an elementary subject long after its principles have been applied. These are not slight blemishes, but serious defects in any treatise. They show a careless habit of study on the part of the author, and exert an unfavorable influence upon the students.

The first chapter is devoted to "Inflammation," and covers one hundred and twenty-four pages. It includes abscess, ulceration, and mortification. The author does not lay too much stress upon the importance of a thorough knowledge of this process, so universal, when he warns the practitioner who ignores it of the certainty of disaster and defeat. The chapter contains a very full and generally good exposition of the subject, but it lacks that orderly continuity of subjects which we anticipated would characterize the subject-matter of chapters when we examined the table of contents. This fact will be apparent on noticing the order of sub-headings, an example of which follows, embracing the first few lines: "Varieties of Inflammation—Healthy—Unhealthy—Acute—Chronic—Causes of Inflammation—Predisposing Causes—Exciting Causes—External—Internal—Extension of Inflammation—Acute Inflammation—Local Symptoms—Heat—Pain—Redness—Swelling—Alteration of Function—Constitutional Symptoms—Inflammatory Fever—Nature of Inflammation—History of the Causes and Nature of Inflammation—Nerve-Agency in Inflammation—Termination of Inflammation—Treatment of Inflammation," etc. Although this chapter embraces all of the headings necessary to a full consideration of the subject of inflammation, yet in the arrangement of the material the utmost confusion prevails. We shall not attempt to follow the author through the labyrinth which he has constructed, but would advise the student who wishes to gain clear and practical views of the process of inflammation to study the philosophical essay of John Simon in Holmes's "System of Surgery," with Burdon-Sanderson's continuation of the subject in the last edition of that work, now accessible to every one.

The chapter on "Wounds" occupies one hundred and three pages, and is complete in all the details necessary to a practical knowledge of the subject. It opens with an illustrated description of the organization of clot or thrombus after ligature of an artery, the results of a series of experiments of ligation of the arteries of dogs. The microscopical examinations were made by Dr. Shakespeare. Though no new light is thrown on the subject, the examination and illustrations are very creditable. In comparing hæmostatics, the author regards it as not proven that the time-honored thread ligature is a foreign body and acts the part of a seton. This is a remarkable statement on the part of a practical surgeon who would make a seton of the material which he denies has such effects under other but precisely similar circumstances. In another place he seems to admit that the thread ligature does act as a seton, and regards this function which it performs as very beneficial, as it affords the means for the escape of matters injurious to the wound. But the important question to answer is this, "If an unirritating ligature was used would there be any need of drainage?" In other words, "Does not the thread create the necessity for the drainage for which it provides?" Contrasting the animal and common ligature, he speaks favorably of the antiseptic catgut ligature because it lies harmless and unirritating in contact with the tissues. The author states that after a year of trial he is satisfied that the antiseptic treatment of wounds has advantages over all others.

Chapter III. on "Injuries of the Head" opens the series of chapters on regional injuries, and includes wounds of the cranium, face, and neck. Wounds and injuries of the cranium are treated very fully, and with judicious discrimination as to the conditions requiring operative interference when the cranial bones are involved. We are glad to see that the author does not recommend trephining on every trivial occasion, but limits it to those cases in which the symptoms point unmistakably to cerebral mischief from the fractured bone. Injuries of the face and neck are considered with ample details, and are replete with instruction.

"Wounds of the Chest and Abdomen" occupy the fourth chapter. The treatment of penetrating wounds of these cavities is conservative. In such wounds of the chest, if there are clots in the wound they should not be disturbed; if not, the wound may be explored with the probe or finger to determine if any foreign matters are accessible, but beyond this point further explorations are pernicious. The practice of hermetically sealing all chest wounds he regards as unphilosophical; the method is to be adopted only in cases where air and blood escape in small quantities. In penetrating abdominal wounds he would not favor exploration or interference unless there were proof that the intestine was wounded, as the discharge of fecal matter at the wound. There is one important factor in the present treatment of chest and abdominal wounds that we should be glad to have found emphasized. We refer to the method of protection of the peritonæum by the antiseptic treatment. We believe the time is not distant when these wounds will lose much of their danger by this method of protection from destructive inflammation. Though it is true that oftentimes the diagnosis of intestinal lesions is doubtful, yet, considering its fatality, it may become a well-established practice to open the abdominal cavity for purposes of exploration, *provided* we can do so without adding to the perils which the patient may otherwise have to encounter. The treatment of rupture of the urinary bladder is limited by the author to retaining a catheter, the point being just within the organ, and combating peritonitis and cellulitis by means of leeches over the abdomen, followed by poultices and opium. It is sufficient to say of this treatment, if the rupture is through the peritonæum, it will not prevent fatal results; and, if it is extra-peritoneal, it will not prevent dangerous extravasation. In fact it is no treatment at all; the urine will not drain through the catheter so as to prevent its escape at the rupture, while the leeching depresses injuriously the vital energies, already overwhelmed by shock and poisoned by the products of an inflammation excited by urine. The only rational treatment is immediate cystotomy, the opening being made at the most dependent part accessible, as in lateral lithotomy. The general treatment should be vigorously sustaining; by these means it is possible to save the most severe cases of rupture of the urinary bladder.

"Wounds of the Extremities" are treated in the surprisingly short space of five pages. The only subjects specially noticed are wounds of certain arteries and nerves.

Chapter VI. is devoted to the "Diseases of the Abdomen," and includes a multitude of subjects foreign to that region, if we follow anatomy as taught in the school in which the author teaches surgery, and excludes many others which have a just claim to consideration in this connection. "Diseases and Injuries of the Blood-vessels" fill one hundred and seventy-four pages, and form the most interesting chapter which we have passed in review. Not only is the descriptive part prepared with great care and well illustrated, but that portion devoted to the ligation of arteries abounds in valuable statistical matter which gives the reader accurate knowledge of the history and success of operations on the arteries. The treatment of aneurism by other means than the ligature is fully discussed. He prefers digital to all other forms of compression, by which means he cured seven cases of popliteal aneurism in succession. The elastic bandage has given no favorable result in his hands. The injection of any of our present known coagulating agents into a true aneurism he thinks should be banished from surgical practice. He suggests very correctly that the diminution of the aneurism after the subcutaneous injection of ergotin into the cellular tissue around the tumor, as practised by Langenbeck, was due to inflammation induced rather than to the contraction of the coats of the artery. In regard to the ligature we fail to find that appreciation of the great advance recently made in applying the animal ligature antiseptically, which we had anticipated. After the personal exposition of the subject, and illustration of the details by

Mr. Lister, at the International Congress, it was but natural to suppose that, in a work so extensive, this most important improvement in modern surgery would have been fully discussed. The author prefers in all cases to employ "animal thread," cutting off both ends and closing up the wound. This ligature has never failed in his hands, even when applied to vessels of the size of the external iliac. In what respect these ligatures never failed we do not know; if they never caused suppuration, if the wound healed by immediate union without reopening, if meantime the artery was permanently occluded, the success was all that could be desired, and we cannot understand why the ligature should be a last rather than a first resort with the author. Now, it is a fact that the carbolized catgut ligature, antiseptically applied, does give us these results and much more. Not only does the wound heal by immediate union, and remain firm without suppuration or fever, but, instead of dividing the artery and predisposing to secondary hæmorrhage, the ligature of catgut is gradually superseded by a firm ring of living tissue which strengthens the artery at the point of ligation beyond the possibility of rupture. And the legitimate inference is that a ligature thus applied may be at any point of an artery quite regardless of branches. With such facts to guide us in the application of the ligature, we should be disposed to regard the carbolized catgut ligature, antiseptically applied, as the method *par excellence* in the treatment of aneurism. It is apparent, however, that the author contemplated no such results with the "animal thread" which he uses, for in comparison of methods he evidently still estimates the value of the ligature by the results of the old-fashioned silk thread. We are firm in the conviction that the author's conclusions of a somewhat elaborate statement of the various methods are appropriate to a past generation of surgeons rather than to the advanced practitioners of our time. As such they are judicious, and we commend them to the careful consideration of those who discard "new-fangled notions": "Under any circumstances the treatment of spontaneous aneurism is attended with much uncertainty as to the final issue. The same considerations which govern the surgeon in undertaking any grave operation should have equal weight when applied to cases of aneurism. Where the kidneys are diseased, or the patient is much exhausted by prolonged suffering, and where there is extensive disease of the heart, or a second aneurism is present affecting the abdominal or the thoracic aorta, any operation is of doubtful propriety, and most of all the ligature. . . . In all aneurisms which come properly within the scope of surgical treatment, pressure in some one or several of its forms, including flexion, should be first and fairly tested, always preceded by preparatory measures, such as entire quiet in the recumbent position, a properly regulated diet, and the exhibition of heart sedatives. If after a patient trial those measures fail, and if there be no contraindicating circumstances of a constitutional or local character, resort may be had to the ligature."

In the discussion of aneurism of different arteries and localities, this work far surpasses other treatises in those practical details which guide the surgeon in the proper selection of measures and their judicious application. It forms, indeed, a storehouse of facts which will long remain the basis of successful practice in the treatment of aneurism. We must add also a word of commendation of the excellent illustrations of the dissections in ligation of individual arteries, most of which are new and very instructive for reference in emergency. The only feature of the chapter which we regard as defective is the conspicuous absence of recommendations of the antiseptic method of applying the ligature.

Passing over the interpolated chapter on "Surgical Dressings," we come to the chapter on "Injuries and Diseases of the Osseous System," which forms an ordinary work in itself, occupying three hundred and twenty-four pages. The chapter is for the most devoted to fractures, this subject filling two hundred and eighty-six pages. It is treated with the usual minuteness of detail which characterizes other portions of the work. Among the signs of fracture we are glad to find rotatory displacement mentioned, which consists in one fragment being turned on its axis. The peculiar pain of fracture is noticed, which surgeons too generally pass unnoticed. The plaster-of-Paris is commended as among the most valuable and easily managed forms of innumerable fracture dressings, and the author informs us that it forms one of his established dressings. He speaks also of its receiving the high commendation of Prof. Hamilton—a statement which must be modified by using the past participle, received, for the present, receiving. The author properly limits the plaster dressing to the period following the subsidence of the swelling, and we think it would have been useful if he had specified the particular kinds of fracture to which it is adapted. Before treating of individual fractures, the author considers the subject of ununited fracture or pseudarthrosis, and introduces an elaborate table of 683 cases. This is one of the tables which give so much value to the work for reference. It embodies all necessary particulars of the various forms of treatment pursued and the results. We quite agree with the author in the statement that "with such an array of operations the reader may be embarrassed to know where to fix his faith," and we are fully in accord with the remark that the mortality from operations of this nature is far greater than is generally supposed. In our opinion, if the antiseptic method does not rescue this operation, it will soon be consigned to the limbo of unscientific surgery.

In the treatment of special fractures we find full consideration given to the various devices and appliances, and a judicious discrimination as to the selection to be made in each case. The remaining portion of the chapter is occupied with the diseases of bone, as caries, osteo-myelitis, and necrosis, and with these subjects the volume concludes. A copious and well-arranged index is appended. A general estimate of this work can but be favorable, whatever may be its special demerits. Every surgeon who aims to keep his mind stored with foundation facts, bearing upon the results of different methods of operation and treatment, will find Prof. Agnew's volume of so much value, and, as regards the statistical matter, so conveniently arranged for reference, that he will be quite oblivious of those defects which must be noticed in a more critical examination. We shall look forward to its completion with great interest.

Art. II.—*Transactions of the Medical Society of the State of New York for the Year 1878.* 8vo., pp. 339. Syracuse: Truair, Smith & Bruce. 1878.

The most noteworthy event mentioned in the proceedings of the Society is the change of time of the meetings of the Society back to the first Tuesday in February. Dr. Jenkins, who was elected President at the previous meeting, did not act, and consequently no president's address is published.

The first communication is a "Case of Penetrating Wound of the Stomach, with Recovery." Reported by Eugene Beach, M. D.

Dr. A. McLane Hamilton makes "A Contribution to the Study of Auditory Epilepsy," in which he cites a case of epilepsy which occurred in consequence of disease of the inner ear. It was discussed by Dr. Roosa.

Dr. Robert F. Weir contributes a paper "On Urinary Fistula in the Ante-Scrotal Region." He recommends operating by making a semi-circular flap, denuding it, turning over the fistulous openings, and pocketing in the opposite side. This operation is said to have been first performed by Szymanowski. The text is illustrated with cuts.

Dr. George Bayles reports some "Clinical Observations relating to Vaccinations during Attacks of Pertussis." Discussed by Dr. Cronyn.

Next follows "Registration of Vital Statistics—Suggestions concerning the Duties of Physicians in certifying the Causes of Deaths and in reporting Prevailing Diseases and Preventible Causes of Mortality—Outlines of a Plan for this Service." By Elisha Harris, M. D. This is quite an elaborate article, and the hints thrown out are such as the profession will readily approve.

Dr. E. Seguin writes a good article on "More Uniformity in Physic and Pharmacy."

Dr. Stephen Smith gives "Some Practical Tests of the Claims of the Antiseptic System" by reporting a number of cases of remarkable, although different, character. The results of his cases seem to prove very conclusively the value of antiseptic treatment in surgical cases. He also gives Lister's method of applying the dressing to a wound. In the discussion which followed, Dr. J. M. Minor remarked that in the Brooklyn City Hospital they employed carbolic-acid dressings very freely, which method seemed to possess all the virtues which are gained by the more complicated procedure of Lister. The subject is one of great interest to the profession.

Dr. Walter B. Chase contributes an article entitled "Lacerations of the Cervix Uteri as a Factor in some Forms of Uterine Disease, with Cases Illustrative of Treatment." Dr. Chase draws the inference, and others, we may add, with him, that laceration of the cervix occurs more frequently than is generally suspected; that it is the cause of the accompanying subinvolution; and that it does not heal spontaneously. Drs. Barker and Jacobi, in discussing the paper, suggest that the accident is not likely to occur among women in the upper walks of life; and with proper professional attendance, attention to cleanliness, etc., the majority of cases which do occur may be allowed to get well without an operation.

In an article entitled "Estimation of Urea," Maurice Perkins, M. D., gives a delicate and ready method of making a quantitative analysis.

Prof. Joseph G. Richardson, of Philadelphia, describes an "Improved Method for detecting Leukæmia during its Early Stages, and for enumerating the White Blood-Corpuscles in Disease generally."

Dr. Thomas R. Pooley contributes an article on "Ischæmia of the Retina."

Arthur Mathewson, M. D., in his somewhat elaborate "Remarks on the Diagnosis of Intracranial Tumors, with Cases," makes the condition of the optic nerve known as the choked disk (a form of neuritis), as revealed by the ophthalmoscope, the pathognomonic symptom.

Dr. E. R. Squibb contributes a "Note on Hydrobromic Acid," giving some very useful hints in the mode of preparing and administering it.

D. H. Goodwillie, M. D., contributes a good article on "The Salivary Glands—Some of their Diseases and Treatment—Illustrative Cases exhibited by Wax Models, with the Apparatus used in Treatment."

Dr. M. D. Benedict reports a "Case of Intussusception with Sloughing and Extrusion of a Portion of Small Intestine." The patient, a woman, lived five months after the passage of the piece of intestine, some fifteen inches in length.

The succeeding article is entitled "Surgical Notes—1. Nerve-Stretching for Cure of Sciatica; 2. Operations under Nitrous Oxide." By C. H. Giberson, M. D. Under the first head a case of sciatica is reported in which forcible stretching of the sciatic nerve, after cutting down upon it, effected a cure. In the section of the paper relating to the administration of nitrous oxide several cases are reported illustrating its value. A spirited discussion of the relative merits of this substance and sulphuric ether followed.

Dr. L. Duncan Bulkley contributes a very excellent article "On Diet and Hygiene in Diseases of the Skin."

Dr. A. Vanderveer reports a "Case of Ovarian Tumor treated by Electricity by G. A. Pierce, M. D., New Lebanon, New York." The method employed was Cutter's, by means of his cautery battery and the introduction of large needles. It was used seven times, with a steady diminution of the fluid until none could be detected.

The "Report of the Committee on Hygiene," of which Dr. E. V. Stoddard is chairman, is quite elaborate and highly suggestive. The individual reports are too varied to enable us to epitomize them.

It will be seen that the range of subjects treated makes the volume one of considerable interest.

ART. III.—*Stricture of the Male Urethra. Its Radical Cure.* By FESSENDEN N. OTIS, M. D., Professor of Genito-Urinary Diseases in the College of Physicians and Surgeons, New York; Surgeon to Charity Hospital, etc. New York: G. P. Putnam's Sons. 1878.

DURING the past ten years Dr. Otis has written much upon this subject. His contributions have been the result of careful anatomical and clinical study, and have been marked by great industry and conscientiousness. His views have been advanced boldly and repeatedly, and have been opposed vigorously, and defended warmly. All this material, if we may so term the efforts both of the author and his opponents, has been collected, and is now placed before the reader in this attractive volume of 350 pages. The book merits careful consideration on the part of the profession, and it will be likely to be thoroughly read. The opinions of Drs. Sands, Weir, Keyes, and of Mr. Berkeley Hill, which conflict with those of the author, are quoted at length, as is likewise the testimony of Drs. Pease, Brown, and Martin, who practice his methods. It is sufficient, in view of the publicity that has been given to these contributions, to mention the conclusions which Dr. Otis thinks himself warranted in expressing, and to refer the reader to the book for an elaborate consideration of the grounds for the statements.

1. That the urethra is an individuality; and hence, to obtain the true normal calibre of any urethra, it must be measured or estimated independently of any other.

2. That the meatus urinarius is worthless as a guide to the normal urethral caliber, and that its abnormal contraction is the cause of the pouch-like dilatation of the urethra behind it, known as the fossa navicularis.

3. That stricture is a relative term. Hence its extent must always be estimated by comparison with the previously ascertained normal caliber of the urethra under consideration.

4. That the slightest abnormal contraction of the urethra at any point constitutes a stricture.

5. That a stricture, in this sense, is always a point of friction, the legitimate tendency of which is to produce inflammation; and hence the slightest appreciable stricture becomes worthy of consideration. That serious trouble often results from strictures which but slightly contract the caliber of the urethra, and which do not markedly interfere with the passage of the urine; and that among such troubles spasmodic stricture, simulating true organic structure in every respect, is often caused by such slight contractions.

6. That stricture is a cause, though not the only cause, of gleet, and is, when present, always a cause of its persistence.

7. That true stricture always embraces the entire circumference of the urethra at some point.

8. That complete division of stricture at any point results in the immediate disappearance of the stricture.

9. That separation of the sundered ends of the stricture, suitably maintained until the healing of the wound, prevents the return of the stricture, and finally results in the complete absorption of the stricture tissue.

10. That stricture is, strictly speaking, an inflammatory product, and that any acute or chronic inflammation may produce it.

11. That stricture is often present as a result of inflammation caused by lithiasis, masturbation, or urethral laceration (by gravel, etc.), though usually the sequel of a gonorrhœa.

12. That stricture occurs most frequently in the anterior part of the canal; and with increasing frequency when approaching the meatus, where a gonorrhœal inflammation begins the earliest, rages the hottest, and lasts the longest.

Art. IV.—*Lithoplaxy, or Rapid Lithotrity with Evacuation.* By Henry J. Bigelow, M. D., Professor of Surgery in Harvard University; Surgeon of the Massachusetts General Hospital. Boston: A. Williams & Co. New York: William Wood & Co. 1878.

This volume of forty pages is a reprint with additions from the "American Journal of the Medical Sciences" of January, 1878, the "Massachusetts Medical and Surgical Journal" of February 28, 1878, and the "New York Medical Record" of June 8, 1878. The publicity given to this method by several so recent appearances in print renders it unnecessary for us to do more than call attention to its distinctive features. These are, in the first place, the lengthening of the sitting till the stone is completely crushed, and, in the second place, the removal of the fragments by a new evacuating apparatus, which is far more efficient than those now in use. Dr. Bigelow believes that the damage to the bladder from sharp fragments of calculi is much greater than from the blades of a properly constructed instrument, and "that it is better to protract the operation indefinitely in point of time, if thus the whole stone can be removed without serious injury to the bladder." The evacuating apparatus consists of straight and curved silver tubes of sizes varying from twenty-seven to thirty-one of the French scale, and a rubber tube of seven sixteenths of an inch diameter connecting the tubes with a large rubber bulb, which has a glass receptacle attached to its fundus for the purpose of receiving the fragments. These tubes are larger than any heretofore used, and allow the passage of fragments of a diameter little less than their own. It is hence no longer necessary to reduce the stone to powder. To break it into fragments is sufficient; and, to accomplish this as rapidly as possible, the lithotrite has been so modified as to make it more powerful, quite as easy to manipulate, and less likely to catch the mucous membrane. It is, like the evacuating apparatus, a vast improvement on the instruments which have preceded it.

The clinical evidence as to the value of this method, although meager, is extremely satisfactory. Fourteen cases have been operated on with one death. All but two were finished in one sitting, varying in duration from one to three hours, and yielding quantities of detritus varying from fifty and sixty to one hundred and ten grains. These are sufficient to prove the tolerance of the bladder to longer sittings than have been advised by lithotritists, and to induce surgeons to put the method at once on trial. Some disadvantages may be disclosed by the record of a larger number of cases, but at present the operation seems likely to revolutionize the surgical treatment of stone in the bladder.

ART. V.—*Practical Surgery: including Surgical Dressings, Bandaging Ligations, and Amputations.* By J. EWING MEARS, M. D., Demonstrator of Surgery in Jefferson Medical College, Professor of Anatomy and Clinical Surgery in Pennsylvania College of Dental Surgery, Surgeon to St. Mary's Hospital, etc. Philadelphia: Lindsay & Blakiston. 1878.

IN a small octavo volume of two hundred and eighty pages the author has dealt very fairly with the subjects mentioned in the title. The part devoted to Bandaging is on the whole satisfactory, although the illustrations are very familiar and could be improved upon. To Surgical Dressings a little more space could have been advantageously given, certainly more than six lines to "Splints," while mention of Guérin's Cotton Dressing and some details of the open treatment of wounds would have been valuable. Lister's antiseptic method is properly described. Jute, which in its commercial form, as well as when impregnated with carbolic or salicylic acid, has found such favor in Germany, does not appear to be known to the author. We are surprised that the various dressings for fractures of the extremities have not been included in the surgical dressings. Practical points in reference to the application of these are generally too meager in our standard text-books, and the practitioner is obliged to refer to treatises on minor surgery. On the other hand, such operations as ligations and amputations receive ample attention in the larger books, and are not needed in the smaller ones. These operations have been briefly described by the author, with anatomical details and some passable illustrations. They do not merit special comment. Some of the minor operations would have been quite as useful subjects for a book of this sort. Incisions into abscesses, counter-openings and insertion of drainage-tubes, cauterization, subcutaneous injection, cupping, and venesection, may be mentioned as examples. At the same time we must not forget the purpose of the author, as announced in the preface, of including in his book those subjects which are treated of in his courses of instruction. He has certainly handled well the topics selected, and produced a valuable and useful volume.

ART. VI.—*Hand-Book of Surgical Pathology for the Use of Students in the Museum of St. Bartholomew's Hospital.* By W. J. WALSHAM, M. B., F. R. C. S., Demonstrator of Anatomy and Operative Surgery at St. Bartholomew's Hospital. London: Henry Kimpton. 1878.

IN the preface the author writes: "The method of conducting the pathological part of the examinations at the Royal College of Surgeons of England is to show the candidate a number of specimens of surgical affections, the morbid appearances of which he is expected to recognize, account for, and to describe. This book encourages the method of study which the highest surgical authority recommends by the nature of its examinations."

The author's plan is to give a short account of the affections of different tissues and organs, and then to illustrate, as far as possible by the description of specimens, the stages, terminations, etc. The number of specimens is so great that most important lesions are thoroughly illustrated, and many rare conditions are exhibited. The injuries and diseases of blood-vessels and the genito-urinary system, and diseases of the female breast, are represented by unusually rich collections.

The pathological processes are described briefly but clearly, and with due reference to the views and statements of recent authorities. The addition of illustrations would have made the book far more attractive. In its present form, however, it is a very satisfactory volume, and one that is likely to prove both instructive and interesting to many other readers than those preparing for the examinations of the Royal College of Surgeons of England.

Art. VII.—*A Manual of Prescription-Writing, with a Full Explanation of the Methods of correctly writing Prescriptions; a Table of Doses expressed in both the Apothecaries' and Metric Systems; Rules for avoiding Incompatibilities and combining Medicines.* By Matthew D. Mann, A. M., M. D., Lecturer on Clinical Microscopy and Examiner in Materia Medica and Therapeutics in the College of Physicians and Surgeons, New York, etc. New York: G. P. Putnam's Sons, 1878. Pp. 156. Price, 90 cents.

Many students who obtain a fair and available knowledge of other departments of medicine begin practice with a very imperfect acquaintance with the art of prescribing—an art which they are called upon to exercise at the very outset of practice, and under such circumstances as render it impossible to refer to text-books. It is to supply this needed information that Dr. Mann has prepared the useful little volume to which we now direct attention. The scope and purport of the book are sufficiently indicated by the title, and we need hardly say more than that the author has very satisfactorily accomplished the task he undertook. The directions for prescription-writing are clear and concise, and the examples given in illustration are well chosen. The list of medicines with doses in both the ordinary and the metric terms will be found very convenient for reference, while the chapter on the metric system strikes us as the best we have yet seen. The work should be in the hands of every student of medicine, and might be perused with advantage by a great many practitioners.

Books and Pamphlets Received.—The Bearings of Chronic Disease of the Heart upon Pregnancy, Parturition, and Childbed. With Papers on Puerperal Pleuro-pneumonia and Eclampsia. By Angus Macdonald, M. A., M. D., F. R. C. P. E., Lecturer on Midwifery and Diseases of Women in the Medical School, Edinburgh. London: J. & A. Churchill, 1878.

Lectures on Bright's Disease of the Kidneys. Delivered at the School of Medicine of Paris. By J. M. Charcot, Professor in the Faculty of Medicine of Paris, etc. Collected and published by Drs. Bourneville and Sevestre, editors of the "Progrès Médical." Translated, with permission of the author, by H. B. Millard, M. D. New York: William Wood & Co., 1878.

Lectures on Localization in Diseases of the Brain. Delivered at the Faculté de Médecine, Paris, 1875. By J. M. Charcot, Professor in the Faculty of Medicine of Paris, Chief of the Salpêtrière Hospital, etc. Edited by Bourneville. Translated by E. P. Fowler, M. D. New York: William Wood & Co., 1878.

Laceration of the Cervix Uteri. The Address in Obstetrics delivered before the Medical Society of the State of Pennsylvania, at its Annual Meeting held at Pittsburg, May, 1878. By William Goodell, A. M., M. D., Clinical Professor of Gynæcology in the University of Pennsylvania. Reprinted from its Transactions.

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Annual Address delivered before the American Academy of Medicine at Easton, Pennsylvania. By Frank H. Hamilton, M. D., of New York. Published by order of the Academy.

Case of Poisoning by Oil of Chenopodium. By Thomas R. Brown, M. D. Reprint from the "Maryland Medical Journal" for November, 1878.

The Eradication of Syphilis and Crime by the Extirpation, in that Class, of the Procreative Power. A Paper read before the Maine Medical Association. By George F. French, M. D., of Portland.

Otitis Media Suppurativa. A Paper read before the Maine Medical Association, June 11, 1878. By E. E. Holt, M. D., of Portland.

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Reports on the Progress of Medicine.

QUARTERLY REPORT ON LARYNGOLOGY.

No. XVI.

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2. These forms for note-taking of throat cases have been specially prepared by Mr. Browne, for the purpose of securing uniformity of method and completeness of information in all cases of sufficient interest to require detailed accounts. The blanks, if fully filled out, will certainly meet both requirements, and will therefore be a useful guide and assistance to those unversed in the taking of clinical histories. To the experienced, and for those specially who are obliged to see and treat a large number of cases daily, the forms will be practically useless, as they will, in the first place, not take the time required to fill them out; and, secondly, will prefer to write down the history of the case, as they can easily do, from the patient's lips, and in a form at once available for future presentation in the medical journals, if it be desirable to publish it. If the blank be used, the history of a case will needs be entirely rewritten, for it furnishes but skeleton notes, very complete it is true, but still in a fragmentary style.

Mr. Browne has taken a step in the right direction, and one that is to be applauded, when he endeavors by any means to insure the systematic registration—which naturally implies careful, perhaps increased, clinical observation—and study of all cases and their utilization for the good of the profession.

4. The report of a case in which a boy drew into his larynx the seed

of a water-melon. After remaining *in situ* thirty-eight days it was coughed out. During its sojourn the patient suffered continually from dyspnœa, with occasional attacks of laryngeal spasm. No effort seems to have been made to remove the foreign body.

5. Comandré's patient was in the first stage of phthisis when he was attacked by complete aphonia. The larynx showed no lesion whatever beyond a slight reddening of the mucous membrane. Under the thermal treatment, continued forty days, his general condition improved, but the aphonia was not relieved. He left content, and during the following winter improvement began to manifest itself in his voice. This continued for four or five months, till the voice entirely regained its normal volume and tone. This case would show that very often the beneficial effects of the thermal treatment upon consumptives are not apparent till some time after their employment, a fact which has been observed by Dr. Cazenave de la Roche of the waters of Bonne.

7. Cupp's article treats mainly of the question of ligature of the external carotid artery on account of profuse arterial hæmorrhage from stab-wounds in the region of the angle of the jaw, or hæmorrhage from the mouth, especially from the neighborhood of the tonsils; from carcinoma of the tongue, of the cavity of the mouth, or on account of secondary hæmorrhage after operations in these localities. Formerly the common carotid was, as a rule, the artery ligated; but statistics inform us that, unfortunately, more than 50 per cent. of the cases operated upon die, and of these more than 30 per cent. presented serious brain symptoms; in a further 30 per cent. the operation was unsuccessful, as a fresh hæmorrhage followed it. Statistics give us the information likewise that the internal carotid is but seldom injured, usually some branch of the external carotid, or the artery itself. The fear that ligation of the external carotid would be followed by secondary hæmorrhage has not been realized. In the discussion following the above paper Holmes reported a case in which, through laceration of the tonsil, an opening into the internal carotid artery was suspected. In such an instance were a tonsillar branch of the external carotid wounded it naturally followed that ligature of the external carotid should be performed. Backer called attention to his case of ligature of the common carotid on account of wound in the neighborhood of the tonsil. At the *post-mortem* examination an opening was found in the ascending pharyngeal artery. Here the ligature of the external carotid would have been useless.

8. In a pamphlet devoted to the subject of the treatment of naso-pharyngeal polypi, by Dr. D. Juan Creus-y-Manso, of Madrid, he gives the details of the symptoms and treatment of a formidable case of naso-pharyngeal polypus, in which he performed ablation of the upper jaw. The hæmorrhage appears to have been unusually great, and the case terminated fatally on the eighth day. He takes the opportunity of reviewing the treatment of these cases, and the conclusions at which he arrives are: 1. That the so-called naso-pharyngeal polypi, which grow from the base of the cranium, are in reality fibromas, and ought so to be called. 2. They not only invade the pharyngeal and nasal cavities, but they make their way into other adjoining cavities through the apertures normally existing, into which they penetrate after the fashion of a wedge. 3. They produce very serious hæmorrhages and symptoms depending on their increase of volume, leading to disturbance of important functions. 4. The cavity of the cranium itself is not free from their attacks, and after making their way through the bony walls they may occasion immense losses of substance, without revealing their presence by any active symptoms. 5. It has not been shown that they cease to increase as the patients pass from youth to adult age, though they are most common in

youth. 6. When the increase in size of the tumor and the hæmorrhage or other symptoms threaten the life of the patient, if there be no evidence that it has penetrated the cranium, its removal is indicated. 7. Palliative operations are useless, and at the same time serious, since they have to be repeated on account of new growth of the tumor. Their radical extirpation is sometimes followed by successful results. 8. Although it has not been shown that any operative procedure will prevent relapses, the radical cure should fulfill two objects: first, to destroy the tumor; and secondly, to leave an opening sufficiently large to enable any recurrence of the tumor to be immediately attacked by some destructive agent. 9. All forms of ligature or cauterization are ineffective; excision is difficult, and accompanied by severe hæmorrhage; avulsion difficult and incomplete; electrolysis is also imperfect and incomplete. 10. These tumors can not be attacked by the natural orifices, but Nélaton's or the palatine plan may be of service when there are no extensive ramifications. 11. Resection of the maxilla, although it causes an irreparable loss of substance, is necessary in complicated cases, and is not in itself a serious operation. 12. The floor of the orbit and eye should be preserved if possible, as well as the anterior face of the resected portion of bone. The cutting-pliers are preferable to the chain-saw in the greater number of cases, because it can be applied more rapidly, and the cut is clean. Lastly, the so-called osteo-plastic resections do not satisfy the second desideratum of the radical cure.

9. Cornil communicates the results of his examination of several mucous patches of the tonsil as follows:

First Variety: Opaline Mucous Patch.—The epithelium is thickened, the papillæ elongated, and the deeper connective tissue thickened by infiltration with new cells. The superficial layer of epithelium presents cells with cavities round their nuclei; frequently also the cavity of the cell is filled with pus instead of the nucleus. Moreover, in this same layer there are little nests filled with globules of pus, little abscesses hollowed out amid the epithelial cells, containing from four to ten or even up to a hundred globules of pus. These collections of pus give the appearance of opalescence.

Second Variety: Ulcerated Mucous Patches.—The epithelial layer is disintegrated by a great quantity of liquid and pus-globules coming from the papillæ. The epithelial layer may be completely destroyed and the inflamed papillary body form the base of the ulceration. There exists sometimes a true false membrane, gray, adherent, diphtheritic, upon this ulceration. The false membrane contains no parasites, but the branching state of the epithelial cells, the holes or cavities in them filled with pus, present the same aspect as in diphtheria.

In both cases the closed follicles of the tonsils were inflamed and the whole organs were hypertrophied. The lymphatic sinuses round the follicles and the reticular tissue presented a variable quantity of large cells with one or more nuclei containing red blood-corpuscles. This follicular lesion is identical with that which the author described in the glands in the first and second stages of syphilis; in short, the syphilitic tonsils in the second stage represent a papule upon a syphilitic gland.

12. That part of Englemann's admirable and interesting article which concerns the hystero-neuroses of the pharynx, larynx, and bronchi, and which we reproduce in full on account of its importance to the laryngologist, will be found of much interest. The subject is one that has never been fully worked up, and upon which but little can be found in the literature of the specialty. Such articles therefore as Dr. Englemann's are of practical worth and merit careful attention. We give our extract in the doctor's own words:

"3. *Hystero-Neuroses of the Pharynx.*—It has not been my good fortune to observe a typical case of pharyngeal hystero-neurosis in the short space of time which has elapsed since my attention was first attracted to these remarkable phenomena; and in order not to refer to questionable cases, such as I saw several years ago and am now inclined to class under this head, I will refer to that most valuable paper on 'Pharyngeal Neuroses due to Uterine Disease,' by Dr. Edgar Holden, of Newark, N. J., published in the August number of the 'New York Medical Journal' for 1877.

"Dr. Holden gathers four instructive cases from a number which have come under his observation: in all but one the patients were well to do, one only unmarried, the youngest twenty-four; the eldest, who had borne seven children, forty-three, approaching the change of life; two of them remarkably healthy and robust. The sufferings of the patients were continual and severe; their complaints were about the same, of intense aching pain just behind the whole length of the posterior pillars of the palate; sore throat extending up and down the sides; pain, varying in intensity, often worse after fatigue, rarely lancinating, more of a slow torturing ache.

"In no case did the most careful examination, rhinoscopic and laryngeal, reveal any signs of disease in the parts complained of. The patients had been treated by Dr. Holden and by others for subacute pharyngitis with local applications of nitrate of silver or chloride of zinc, sometimes without benefit, sometimes with temporary relief, but in no instance with perfect success.

"In the second case mentioned by Dr. Holden, after the treatment of the throat difficulty had been abandoned, the success being but partial, the patient came to him for treatment of her dysmenorrhœa, due to anteflexion and endo-cervicitis. The erosion and inflammation were successfully treated, and the pharyngeal trouble disappeared, recurring at times, but permanent relief finally followed the removal of the extreme anteversion.

"The pharyngeal symptoms above described, unaccompanied by any evidence of disease, such as congestion, infiltration, or follicular swelling, have been found to depend sometimes upon erosions and leucorrhœa, but, as it seems, mainly upon anteflexion, and have always disappeared, without any application whatsoever to the pharynx, upon treatment of the womb disease.

"No better description of the hystero-neuroses of the pharynx could be given than that of Dr. Holden, who has so strikingly verified the dependence of the pharyngeal trouble on uterine derangements.

"4. *Hystero-Neuroses of the Larynx.*—Much more frequent than any of the neuroses as yet described is the disagreeable and intractable cough which we sometimes find associated with malposition or disease of the uterus.

"This hystero-neurosis of the larynx, a short hacking laryngeal cough, will often be noticed in young girls in a mild form, but at times it becomes a source of great annoyance. Examination will, in such cases, reveal a healthy larynx, but generally flexion or stenosis and painful dysmenorrhœa, sometimes uterine catarrh.

"The only treatment is *per vaginam*, and as soon as the uterine disorder is improved the cough ceases.

"We must not confound with this hystero-neurosis hysterical aphonia or the laryngismus of nervous and hysterical women, those distressing paroxysmal attacks of cough or of suffocation and strangulation which are as harmless as they are alarming, and disappear as rapidly as they come.

"5. *Hystero-Neuroses of the Bronchi.*—When the bronchial filaments of the pneumogastric and those of the plexus pulmonalis respond to uterine irritation, the hystero-neurosis of the bronchi is developed, which may appear as a severe irrepressible cough in the form of dyspnœa, or as a most troublesome asthma.

"The following case I shall give more in detail, as it is the most marked that I have ever seen, and the relation of cause and effect could be demonstrated at will with the certainty of a laboratory experiment; moreover, the *post mortem* added a proof, if such were needed, of the fact that the distressing bronchial symptoms were merely nervous and not accompanied by any structural changes:

"CASE IX.—Mrs. S. I first saw in consultation with Dr. Otto Greiner, of St. Louis, by whose courtesy I am enabled to give the full history. The patient was an exceedingly irritable, nervous woman of forty-two, who had had four children; formerly healthy and strong, she had become emaciated to the last degree, with a careworn, haggard look; menstruation in former years was comparatively regular, and unaccompanied by pain.

"In October, 1875, she began to suffer from nightly attacks of asthma. When these attacks first appeared, they presented all the symptoms of a nervous or hysterical asthma, with bronchial cough and expectoration toward the end of the attack as the asthma subsided. Coming every night soon after eleven o'clock, they would continue for an hour or more according to their severity and then disappear, leaving the patient entirely free from the annoying symptoms; but as the disease progressed her suffering became continuous, the trouble persisting, though in a milder form throughout the entire day.

"The case had gone from hand to hand, and the pharmacopœia had been exhausted by the numerous physicians consulted; she herself supposing a prolapse had inserted various kinds of pessaries. From these facts Dr. Greiner when called in suspected that the bronchial trouble might be in some way connected with a morbid condition of the uterus, and he was confirmed in this by the marked exacerbations a few days previous to the menstrual period, the bronchial asthma continuing unabated throughout the entire duration of the uterine congestion and gradually yielding in intensity as the catamenial flow disappeared. The symptoms always abated more or less after the cessation of the flow, but continued throughout the inter-menstrual period, again to become more violent at the approach of the next period.

"Notwithstanding the grave symptoms, auscultation and percussion revealed but little; while upon vaginal examination Dr. Greiner found an elongated, acutely retroflexed uterus, movable and straightened by the probe without much difficulty. He introduced a sponge tent; the patient soon began to feel more comfortable, and in less than twelve hours the annoying cough and asthma which had so long troubled her entirely disappeared. An intra-uterine stem, ingeniously constructed to suit the case by Dr. Greiner, was next introduced, and, as long as it could be borne without irritating the mucosa, the cough and asthma ceased.

"The symptoms, as I have myself several times observed, would abate soon after the introduction of the stem, to cease entirely within a few hours, but upon removal of the instrument the former suffering was sure to return in from five to twenty-four hours.

"The bronchial symptoms responded with the greatest certainty and regularity to a change in the position of the womb.

"Retroversion pessaries did but little good, some even proving injurious; pressure, even the slightest, on the posterior wall of the corpus uteri caused intense pain and a fearful exacerbation of the symptoms, as was demonstrated by a glycerine cotton tampon which had been introduced with a view of elevating the fundus.

"At last the stem could no longer be borne, and the patient's suffering became so unbearable at the time of the catamenia, while she was free from the asthma for two weeks of the inter-menstrual period, that I determined to bring about the menopause by Battey's operation. I removed both ovaries, and the patient, enfeebled by long suffering, died on the sixth day after the operation.

"The *post-mortem* examination showed the lungs to be almost normal, somewhat emphysematous, but the bronchi free, nowhere enlarged, their mucous membrane perhaps a trifle thickened; thus it was evident that the dyspnœa and the severe and continuous cough with muco-purulent sputum were purely nervous phenomena, and clinical experiment had shown the causation to be uterine.

"Case X.—An analogous case is related by Prof. Hegar, of Freiburg.* The patient, a maiden lady, thirty-one years of age, had been troubled during the period of puberty with an annoying cough, which returned in her twenty-sixth year, and grew constantly more troublesome; she complained of intense cervical and hypogastric pains, bearing-down and other uterine pains, loss of appetite, but above all of the hoarse, irritating, and constant cough, which was only temporarily relieved by the use of strong opiates; menstruation was profuse and painful. Examination revealed an anteflexion with chronic metritis and oöphoritis.

"The introduction of an intra-uterine stem pessary afforded almost instant relief from the terrible coughing spells precisely as in my case, where it was used to overcome the retroflexion, and Prof. Hegar's farther experience with the stem was perfectly analogous to my own. It seemed to act unfavorably in other ways, so that as the period approached he was obliged to remove it; in from three to four hours after the removal the attacks returned with all their former severity. The stems were used for several months; but, although the cough was checked, the pain, irritation, and menorrhagia grew unbearable, and the use of the instrument was given up. Electricity as well as all medication failed, and the extirpation of the uterus and the ovaries was determined upon, as the condition of the patient was such that she must apparently soon succumb, and it was highly probable that the cough would subside upon removal of the uterus and ovaries. The operation was successfully performed, and up to the date of the writing of the article, three months after the extirpation, the cough had not reappeared. Similar cases are cited by Chroback,† Grünewald,‡ and Tripier.§

"Hodge gives a number of cases in point. After referring to that tired feeling of the chest and the nervous cough—the dry, the hard, and the paroxysmal cough coexistent with the irritable uterus—he cites several which are decided bronchial hystero-neuroses, as their dependence upon uterine disease is made plainly manifest.‖

"Case XI.—In one case, that of a large, healthy lady who suffered from neuralgic and spasmodic complaints due to displacement of the uterus, a troublesome and continuous cough was produced by the use of a certain pessary, which at once disappeared when the support was changed.

"Cases XII., XIII.—In two other cases the cough would continue for many hours without intermission, defying the ordinary appliances of ano-

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[*] "Wiener med. Presse," 1877, Nos. 14–17.

[†] "Wiener med. Presse," 1869, Nos. 1, 2.

[‡] "Petersburger med. Zeitschr.," 1875, p. 575.

[§] "Leçons de Forme et de Situation de l'Uterus," etc. Paris, 1874, p. 87. Observ. XXII., XXIII.

[‖] Page 186.

dynes, demulcents, etc., causing great fatigue and exhaustion to the patients, who were prevented from taking nourishment or sleep by its severity. In both patients relief was instantaneously obtained by attention to the pelvic irritation. In every instance the attacks were immediately relieved by such mechanical means, without the assistance of medicine.

"Case XIV.—Lastly, the author mentions the no less characteristic case of an unmarried lady, who had been for many years an invalid with a bad cough, short and oppressed respiration, often amounting to spasmodic asthma, who was relieved by attention to the uterine disease, and this after her physician had treated her as a hopeless consumptive for an entire winter and lavished the wealth of our materia medica upon her."

14. Discouraged by his lack of success with the usual methods of treatment for chronic pharyngitis, Dr. Foulis has had recourse to cauterization of the pharynx with the red-hot iron, a method that had already been employed in Germany. He heats the iron to a dull red, and applies it successively to each of the thickened points, but not to the entire extent of the pharynx. The pain is slight, and is easily assuaged by fresh butter flavored with lemon-juice. The swelling caused by the application is not great, and twenty-four hours after the operation all unpleasant reminders of it have disappeared. The cauterization should not be repeated oftener than once a week. Dr. Foulis declares that he has obtained excellent results by this method of treatment. It seems to be unnecessarily severe for a malady so insignificant in appearance, but he asserts that the patients regard the cauterization as a mere bagatelle when compared with the discomforts of the chronic angina.

16. Foulis's article, contrary to what one might perhaps expect from its title, is but the narration of a successful case of extirpation of a tumor of the palate. The rarity of this class of cases makes the following history one of interest: the patient, aged thirty, consulted the doctor for a tumor on the right side of the soft palate; he said it had been growing for two years, and that latterly it had begun to interfere with swallowing. It caused very little pain, and there was no cough. Caustics had been applied to the tumor, with the result of leaving its free surface irregularly cicatrized. For a considerable period he had been taking iodide of potassium, without, however, retarding the steady growth of the tumor. When he presented himself (in January, 1878), the mass was as large as a hen's egg, and it was firmly sessile in the right half of the soft palate, extending upward and outward, with a prolongation downward into the right tonsil. The exact limits of the growth were difficult to define, but it was feared that it might implicate the tissue round the internal carotid artery. The glands in the neck were not affected. The patient was very anxious about the growth, so much so that he had abandoned his work in his mental depression.

Anticipating that blood might flow into the trachea during the operation, the doctor began by performing laryngotomy, tying in a canula into the aperture in the crico-thyroid membrane. This permitted a piece of sponge to be pushed into the upper end of the larynx from the mouth, effectually plugging the larynx. He then cut the cheek open from the right angle of the mouth to the right angle of the lower jaw, and secured the bleeding points. In the same line of incision, he next divided with a small saw the lower jawbone at the angle, and pulled the two rami apart for an inch or more. The right lingual nerve being thus put on the stretch was cut across, after which the tumor, which now lay freely exposed, was carefully dissected out. A large vessel at the lower end of the growth bled freely, but was at once secured. The raw surface was then mopped with a solution of chloride of zinc, the sponge-plug was removed from the larynx, and the two rami of the jaw were brought together by two silver-wire sutures, placed in holes drilled in the bone for the purpose. The cheek was closely sewn up, then the tube was withdrawn from the aperture in the crico-thyroid membrane, and lastly, about one half of the incision over the larynx was sewn together, the other half being left open to allow the air to escape and to obviate emphysema.

The result of the operation has satisfied him that the incision which he employed is suitable for cases in which it is necessary to obtain free access to the parts at the back of the mouth, whether for ligature of a wounded carotid, or for the removal of a growth in the palate or back part of the upper or lower jaw, or fauces and tongue. The closure of the larynx in the manner described leaves the operator free to work in the enormous gap made by the incision; and hæmorrhage ceases to be so serious a complication as it otherwise is when a growth of any considerable bulk is being excised from the regions referred to.

17. Dr. Gasquet's case of laryngeal vertigo resembles closely three recently mentioned by Charcot ("Revue des Sci. Méd.," July, 1877), and in all laryngeal or pharyngeal irritation may be supposed to be transmitted to the inferior cervical ganglion as in the other varieties of vertigo. Gasquet suggests that perhaps tension of the auditory endolymph is not the immediate cause of vertigo, but either is one of its co-effects or produces it by its reflex influence on the inferior cervical ganglion, as in Menière's disease, otherwise, we ought surely to find disturbances of hearing more constantly connected with all cases of vertigo. It seems more simple to suppose that the vaso-motor affection of the vertebral artery may directly produce giddiness without any necessary intervention of the internal ear.

Dr. Gasquet's case is as follows: An admiral, on half pay, had always led an active, temperate life, and had excellent health, until three years ago, at the age of seventy, he caught a severe cold which settled in his throat, and led to violent spasms of cough with urgent dyspnœa, repeated several times a day. A little later he became subject to attacks which he thus describes: he would instantaneously lose consciousness and fall to the ground; after (as he has been told by his family) two or three minutes, he would revive, but felt giddy and confused for some little while. This seems to have been the invariable order of the attacks, in which no convulsions, cry, or in fact any other symptom was ever noticed. He was supposed to be suffering from some uncertain cerebral disease, from epilepsy, or from stomach-vertigo, for all of which he was successively treated, but with no effect. After a time he observed that these attacks (which recurred at very irregular intervals—sometimes several times a day, sometimes not for weeks) were always preceded by irritation in the larynx and spasmodic cough, which, however, were most frequently not followed by loss of consciousness. He put himself under treatment for the laryngeal affection, which gradually yielded; and at the same time the attacks of loss of consciousness ceased, none having occurred for the last nine months.

It will be noticed how closely the symptoms in this case resembled those produced by sudden injury to the brachial plexus as quoted by Dr. Woakes.

18. Dr. Garretson's article consists in the simple narration of a case of laryngeal papilloma in a child of four years removed by thyrotomy, preceded thirteen days by a tracheotomy. The concise style of the narration is original and commendable.

21. Gueterbock reports the following curious case: A man, aged twenty-six, had suffered for one year from a tumor the size of an egg, situated on the floor of the mouth, and which interfered with speech, deglutition, and somewhat with respiration. It fluctuated, and was supposed to be a

ranula. The incision made demonstrated it to be a dermoid cyst filled with cheesy matter and a quantity of curled hairs. The sac was extirpated, and complete cure followed without incident.

22. Although this work can hardly be considered as classic, it is valuable as demonstrating the results of the author's researches upon certain points concerning tubercular laryngitis. A long introduction criticising the various theories relating to the disease, and the chapters upon the etiology and treatment of it, unnecessarily enlarge the brochure. The chapters upon statistics and pathological anatomy on the contrary are exceedingly valuable, and contain much new information. The author's researches were carried on at the Pathological Institute of the Leipzig University, and give evidence of remarkable care.

During a period of nine and a half years, in a total of 4,486 autopsies, 1,226 were made upon subjects showing the lesions of pulmonary phthisis. Of this number ulceration of the larynx was found in 376 cases (or 30·06 per cent.) and ulceration of the trachea in 99 (or 8 per cent.). Heinze also proves that ulcerations of the trachea and larynx are more common among men than women, and in a considerable proportion. Ulceration of the trachea without ulceration of the larynx only appeared in 1·05 per cent. of all cases of phthisis; while the same lesion associated with ulceration of the larynx was observed in 17·05 per cent. of men and 3·07 per cent. of women. The maximum of the relative frequency of laryngeal phthisis according to age also differs with men and women. With men it is between forty and fifty, with women between thirty-one and forty. The maximum frequency of ulcerations of the trachea among men is from the forty-first to the fiftieth year, among women from the twenty-first to the thirtieth. Among children up to fourteen years of age ulceration of the larynx is very rare (2·03 per cent.). Ulceration of the trachea was not observed in a single case. Of the nine cases reported under fourteen, three were under two years of age. Finally the author gives an analysis of the professions of all the cases upon which his statistics are based, but with a negative result. He is unable to state at present what callings create a predisposition for tubercular laryngitis.

The chapter upon the pathological anatomy of tubercular laryngitis is the most valuable part of the book. In it the author attempts to give an exact definition of tubercle. Concerning the existence of non-tubercular ulcerations in the larynxes of tuberculous patients, while he admits that they may occur, he claims that they are rare. Of forty-seven cases of ulceration thirty-nine were plainly tuberculous and but eight non-tuberculous; so that, among phthisical patients attacked by ulceration of the larynx, tubercular laryngitis is the rule. Again, his statistics show that tubercular laryngitis is not more common when cavernous degeneration is going on than at any other period less advanced in pulmonary phthisis. There exists therefore no connection of cause and effect between the formation of cavities and the appearance of tubercular laryngitis.

23, 44. The establishment of a laryngological periscope as a part of the regular work of the "Maryland Medical Journal," the first number of which we have just received, and the appearance of a like department in the "St. Louis Medical and Surgical Journal," certainly seem to argue favorably for a constantly increasing interest in and a more extended cultivation of the important subject of laryngology; for we take it to be an evidence of a general and healthy growth in any special department of our science, when such collations of special literary material are found necessary, and are prepared in response to a general demand on the part of the profession. The importance and interest of such digests as those above alluded to are to-day thoroughly understood and appreciated by all progressive practitioners. We therefore bespeak for our colleagues a cordial support in their new undertaking.

24. Coryza, acute or chronic, will sometimes extend and cause inflammation of the mucous membrane covering the frontal sinuses, the orifices of which are contracted by its swelling. Empyema of the frontal sinuses follows from retention of the secretions. Accumulation of pus in these cavities is a startling accident. Unfortunately the symptoms are not very clear, although it is generally the inflammation of the frontal sinuses which causes the pain in the head accompanying coryza. The author treats this condition by Politzer's method, and by cauterization of the hypertrophied mucous membrane. He reports two severe cases which yielded kindly to this treatment, an abundant evacuation of retained pus following its application.

28. Dr. Jones, after detailing rather minutely the history of a case of syphilitic laryngitis, on which he performed a tracheotomy with the most satisfactory results, says:

"In looking up the literature of this subject I have found ample justification for the operation, not only as a means of averting imminent death, but also with a view to the aid which it brings in the cure of the condition which renders it necessary. The uniform good results which have attended it even in the most extreme necessity, as well as the warning unmistakably given by the recorded cases of death while the operation was under consideration but before it was performed, point at once to its necessity and the danger of delay. We do not have here, as in diphtheria or phthisis, a disease for which there is too often no satisfactory after-treatment, but one for which, however terrible its manifestations, we possess a reliable remedy. By prolonging the patient's life we gain time for efficient treatment; nor is this all, for by diverting the air from the larynx we give that organ the rest which is almost necessary—often quite so—to the process of repair and cicatrization.

29. Dr. Johnson's lecture is an able and instructive one, fully illustrated by the recital of interesting cases, many of them new, or taken from recent literature, and deals very thoroughly with a subject which is of considerable interest and practical importance, a subject which may be said to occupy a neutral territory between the domain of medicine and surgery.

A foreign body may obstruct respiration, occasion much distress, and even endanger life, by becoming lodged in the throat without entering the air-passages, and some remarkable cases are given in support of the assertion (Paget, Johnson, Fergusson). It is worthy of note that, when a foreign body with an uneven surface has been caught in the throat and has scratched the mucous membrane, it often happens that an impression of the irritating substance, being still impacted in the throat, remains for a long time after it has been dislodged (Johnson). A complete closure of the larynx by a foreign body may cause very sudden death. A partial closure may cause gradual apnœa, with some of the symptoms of apoplexy, and the diagnosis may be doubtful, as in the case which is related. Again, a foreign body may enter the larynx and remain there, causing much distress for a variable period (Partridge, Sanderson, Hulke, Smith, Pemberton, Stokes). The chief grounds and elements of diagnosis in cases of foreign body in a bronchus are: 1. Signs of obstruction of one bronchus, usually the right, either partial or complete, and either persistent or intermitting. 2. Physical signs of obstruction of the bronchus, alternating with symptoms of laryngeal irritation and spasm. There may be a sudden rush of air into the lung when the foreign body is coughed up toward the larynx, and an equally sudden obstruction of the bronchus when the body falls back again. 3. Signs of irritation and inflammation of the lung may be present, but when the bronchus is completely obstructed there may be no moist sounds or respiratory sounds of any kind audible over the obstructed portion of lung. 4. The symptoms already mentioned occur suddenly in a person either previously healthy or laboring under symptoms of a different class.

A foreign body in the larynx is a continual source of danger, therefore it should be removed as speedily as possible, even though the present symptoms may not appear alarming or very distressing. By the aid of the laryngoscope a foreign body anywhere above the glottis may not only be seen, but in most cases removed by properly constructed curved forceps. If, in consequence of its shape or position, it can not be removed from above, an opening below—either laryngotomy or tracheotomy—may enable the surgeon, as in Mr. Smith's case before mentioned, to push the coin or other foreign body up into the mouth by means of a bent probe.

It may be possible, by means of the laryngeal mirror, to see a foreign body in the upper part of the trachea, and thus to confirm the diagnosis. If the obstruction is in the trachea, and if the symptoms are urgent, no time should be lost in opening the trachea, when the body will probably be spontaneously expelled, or it may be extracted by forceps. A foreign body having passed into the bronchus, what is to be done?

It should be borne in mind that foreign bodies of various kinds have been expectorated without surgical aid. For instance, the bead in the case of Sir William Fergusson's patient. Sir Thomas Watson mentions the case of a boy who, after several weeks, coughed up a small nail; and in Dr. Spitta's case, before mentioned, a metallic screw was similarly ejected. Tracheotomy, therefore, is not to be resorted to immediately and as a matter of course in all cases. There are, however, three classes of symptoms which call for immediate surgical interference. These are: 1. *Persistent and urgent dyspnœa*, resulting from the lessened vital capacity of the chest, occasioned by the obstruction of a main bronchus. 2. *Paroxysmal dyspnœa*, resulting from spasm of the glottis, occasioned by the foreign body being from time to time coughed upward against the larynx. 3. *Symptoms of irritation and inflammation of the lung*, which, if allowed to continue, may speedily lead to fatal disorganization.

Tracheotomy in the case of a foreign body in a bronchus may be a means of relief in various ways. 1. It may allow of the expulsion of the offending substance by an effort of coughing. 2. By means of long and slender forceps the foreign body may be extracted from the bronchus.

36. M. Raynaud's case, caused by the bite of a viper upon the tongue of an adult, is unique. The injury was immediately followed by intense inflammation of the tongue, fauces, and neck, and three days later by the pathognomonic symptoms of diphtheria—formation of false membrane upon the mucous membrane of the mouth, enlargement of the cervical glands, marked constitutional disturbance, etc.

The case is interesting as suggesting a possible similarity between the known venom of the viper and the undiscovered toxic germ of diphtheria.

37. Chondromas of the trachea are by no means frequent, still a few scattered observations are to be found concerning them. Calcification and ossification, on the contrary, of the tracheal rings occur frequently in aged subjects, and in those showing deep lesions of the tracheal mucous membrane. Generally, the ossified cartilages are united to one another by a *new product*.

Ossific and cartilaginous tumors of the trachea are generally sessile, often very numerous, situated upon the margin or upon the internal surface of the cartilaginous rings, to which they feebly adhere.

The author has observed one fact concerning chondromas of the trachea among autopsies made at the Necker Hospital. In one case the larynx of the patient showed no signs of chronic inflammation, vegetations, or cartilaginous or osseous tumors. The trachea, however, besides the signs of chronic inflammation, showed little nodosities. An oval projection, joining together two of the rings of the trachea, was situated a little to the left of the median line, and occupied the place of the submucous tissue *(intermediate ligament)*. The tumefaction was oval, considerably elevated, and about the size of an elderberry. It was situated upon a cartilaginous ring; the base was sessile. It was strongly adherent, and was covered with thinned mucous membrane. There were three other and smaller projections in the trachea, two above the first mentioned and one below. Two other small tumors were found side by side in the right bronchus, and another very small one at the origin of the left bronchus, just at the bifurcation.

An examination of these tumors showed them to be formed of hard, elastic tissue. A thin section treated with acetic acid and placed under the microscope showed a homogeneous mass studded with hollow cavities. These contained cartilage cells, and left no doubt as to the cartilaginous nature of the tissue. In many places small, blackish points were observed, which effervesced with acetic acid, and were composed of calcareous salts.

40. From the observations recorded in this paper the author draws the following conclusions:

1. There is a variety of cough which depends entirely upon hyperæsthesia of the reflex sensibility of the mucous membrane of the larynx.

2. The characteristics of this cough are its tenacity, its frequency, and the singular phenomenon of appearing at certain hours and in certain positions of the body.

3. Local treatment (anodynes, local modifiers of the sensibility) will either cure this affection promptly or fail entirely.

41. Margery, under the above comprehensive title, reports the history of a case of fibromatous tumor of the right vocal cord. After numerous sittings he succeeded in cutting through its base with the galvano-cautery. The tumor fell into the trachea, whence it was coughed out in a few moments.

48. Dr. Beverley Robinson exhibited a patient upon whom he had performed tracheotomy for epithelial cancer of the larynx at a meeting of the New York Pathological Society, held October 8, 1878, and, after detailing the history of the case, called attention to the following points of special interest:

1. The rarity of this *form* of disease (cancer commencing in the epiglottis). Out of thirty-seven cases of cancer observed by Dr. Charles Fauvel, of Paris, he has only seen one case in which it took origin in the epiglottis.

2. Absence of engorgement of ganglia of neck, which hitherto has been considered a *constant* sign of this disease.

3. Changes undergone in the laryngeal appearances, more particularly after the performance of tracheotomy.

4. Great improvement in deglutition, cough, and general health.

He then asked: "Are not these different favorable modifications of the patient's condition, both general and local, due to the *rest* afforded the larynx by the presence of the tube, and equally, too, by the absence of the frequent and irritating contact of the atmospheric air with eroded and irritable mucous surfaces?"

5. The small holes in the convex portion of the tracheotomy canula, enabling the patient to talk intelligibly through a single, equally small opening in the larynx. This fact shows how small a column of air arising from the larynx can produce good vocal sounds. In this case the patient

could not breathe sufficiently through an opening which was, nevertheless. quite large enough for the transmission of moderately powerful vocal sounds. The practical deduction is that the large oval opening left in certain exterior tracheotomy canulæ is not essential, and that one or more smaller openings are all that is required in instances where the column of expiratory air cannot pass *around* the outer canula.

49. A singular case which the author observed gives him an opportunity of explaining the ordinary treatment employed in this disease. The point, however, to which attention is especially directed is novel and very interesting. A girl, five years old, of otherwise excellent health, applied to him to be relieved of an abundant and very fetid discharge from the nose which had lasted for two years. The most intelligent and systematic treatment failed to benefit her until, by accident, M. Renzone made an injection into the child's nose with a syringe which he had eight or ten hours before used upon a patient suffering from gonorrhœa, and which had not been cleaned. An intense gonorrhœal inflammation of the nose followed, which yielded promptly to treatment, and in five days the discharge entirely ceased.

The cure was permanent. The author, comparing this case of recovery with those obtained in pannus of the cornea by gonorrhœal inoculation, which causes a profound modification of the nutrition of the cornea, asks whether this plan is not as applicable to cases of ozæna which have withstood every other means, since there is complete similarity between the mucous membrane of the eye and that of the nose.

51. The report of a case of a bone in the œsophagus which after fifteen days caused death, through erosion and perforation of the descending aorta, and of a case of a fish-bone in the larynx of a child, removed after the operation of tracheotomy. Reference is also made to two of Schonborn's cases—a fish-bone in the larynx and a glass-headed needle in the trachea, both occurring in children and both removed after a tracheotomy.

52. Schroetter reports four cases cured by his method of dilating laryngeal constrictions. The first, on whom tracheotomy had been performed on account of a *perichondritis laryngea*, came under treatment one and a half month later. Six months afterward the canula was removed, and in nine months more the passage of the dilating instruments was discontinued and the patient discharged cured. The voice was entirely restored, so completely that he resumed his profession of elocutionist. In the second case a cure was attained in the course of a year. The third patient, who had been for some six months under treatment, was nearly cured, and wore his canula closed. Tracheotomy had been performed for the relief of a perichondrial inflammation due to typhoid fever. In still another case of stenosis of the larynx following variola, tracheotomy was not performed, but the patient cured by the passage of bougies—discharged in about five months.

The process of dilatation employed and the method of using the instruments have been repeatedly described—the passage of zinc bougies in tracheotomized cases and of tubes of hard rubber in those treated without opening the trachea.

54. Dr. Carl Seiler presented at a recent meeting of the Philadelphia Pathological Society six cases of tumors in the larynx.

Case I.—Æt. thirty-two. Symptoms of hoarseness with unilateral paralysis of the vocal cords. Laryngoscopic examination revealed a small nodule on the free edge of the left vocal cord projecting slightly into the glottis. An eighty-grain solution of nitrate of silver caused absorption of the growth.

Case II.—Æt. fifty-two. Had complained of loss of voice for eighteen months. The laryngoscope showed a nodule the size of a mustard-seed imbedded in the edge of the left vocal cord, which was also paralyzed. Nitrate of silver failed to cause absorption, but the case was materially improved by the use of electrolysis, passing the current for thirty seconds at a time.

CASE III.—Æt. twenty-one. Complained of failure of voice. Nodule on the middle of the right cord absorbed by nitrate of silver.

CASE IV.—Æt. twenty-two. Two nodules on the left cord. Inhalations of solutions of nitrate of silver tried without effect.

"The class of cases," said the speaker, "illustrated by the above examples were exceedingly rare. Thus far only two cases had been reported in this country. These two occurred in the practice of Dr. Lefferts, of New York. Türck, of Germany, had reported some seven or eight cases. Three of the cases had occurred in professional singers."

CASE V.—Æt. twenty-four. Complained of dryness of throat and huskiness of voice. Mucous membrane injected. Bright-red tumor the size of a pea on the right vocal cord. In attempting to sing low notes there was no vibration of cord. Tumor after removal found to be fibro-cellular. Operation produced entire cure.

CASE VI.—Æt. twelve. Large papillomatous growth filling cavity of larynx. Several pieces of it removed by forceps at each sitting, but no decrease in its size. Tracheotomy performed by Dr. John Ashhurst, Jr. Fully a half ounce in weight of substance of tumor had been removed by forceps. The operation of clipping the growth may have turned growth from papilloma into epithelioma, as suggested by Braun, of Vienna.

55. Under normal conditions the diameter of both bronchiæ is equal to that of the trachea, and the bronchial ramifications of each lung equal to that of its primary bronchus. The breathing-tube (?) forms a cylinder and not a cone. Pathological conditions alter this relation: in chronic tuberculosis the bronchial diameter, and often in emphysema the tracheal diameter, is increased.

56. Dr. Samondes has chosen this point, viz., a period of arrest in the growth of naso-pharyngeal polypi, as the subject of his inaugural thesis. It first attracted attention when it appeared in the published remarks of some member during a discussion in the Paris Society of Surgeons in 1865. As the result of a large number of observations, carefully gathered and analyzed, Dr. Samondes concludes:

"*A.* That if the person so affected is near adult age there is good reason to hope for a period of arrest in the growth of the tumor.

"*B.* That an operation made at this age has a preponderance of chances of being followed by success, either from the tumor not being reproduced after radical ablation, or, if the extirpation be only partial, from the remainder of the morbid mass continuing in a stationary condition.

"*C.* At the age of eighteen the chances of cure are fair, and they increase with the age."

60. In "Report on Laryngology," No. X., a description of Voltolini's so-called simple procedure for the removal of laryngeal polypi was given. More recently the details of a case operated upon by this method by Dr. Ariza has been reported to the profession, as follows:

"The case was one of a woman, aged twenty-eight, with a dark-red polypus of the size of a pea attached to the free border of the left vocal cord near its anterior part, and hanging down into the trachea. After having in vain tried to remove it with various instruments, and also having employed local anæsthesia without sufficiently overcoming the irritability of the larynx, Dr. Ariza had recourse to Voltolini's method. The sponge was applied for several successive days and produced some bleeding from the polypus. As the growth, however, did not diminish much in size, Dr. Ariza endeavored again to seize the polypus with a snare, and succeeded in tearing off a portion of it. After three or four more sittings, in which the sponge was used, the growth diminished rapidly in size, finally became violet or black colored, and on the following day had disappeared entirely. Dr. Ariza considers that this operation is not in the least degree dangerous to the patient, that it can be performed by any surgeon who is not a specialist, and that it is the only operation which can be employed in those frequently occurring cases in which there is absolute intolerance of the larynx. Prof. Voltolini thinks that in the above case the operation might have been completed without the use of the snare, and cautions against endeavoring to tear off hard polypi by the sponge method. As above mentioned, it suffices in these cases to bruise and lacerate the polypus in order that it may mortify and fall off."

62. As Whistler truly says, the study of laryngeal syphilis is recent when compared with the investigations that have been made into the manifestations of this disease in other organs, and that therefore there has existed, naturally enough, until but a comparatively few years ago, a very uncertain opinion as to the lesions most commonly met with there. This is specially the case in reference to those to which special attention is called in the first lecture before us, namely, such as are connected with the early periods of the disease. These are grouped together as follows: 1. Catarrhal congestions, simulating those arising from ordinary causes. 2. Congestions accompanied by diffuse redness and swelling. 3. Mucous patches of various types. 4. More chronic inflammations, occupying, as it were, the period of transition, the signs of which are diffuse redness, thickening, and ragged ulceration, especially of the vocal cords.

63. In an exceedingly interesting and valuable paper on the function of the epiglottis in deglutition and phonation, Dr. Walton shows: 1. That the epiglottis is not essential to deglutition, even of liquids; in support of which view the experiments of the writer are given, and former experiments on the epiglottis are considered. The bearing of pathological cases on this subject is then discussed. 2. That the epiglottis is an important agent in the modification of the voice. Previous observations are quoted, and the results given of the study of the epiglottis in phonation with the aid of a professional singer, and of experiments on the voice artificially produced in the dead larynx.

OBSTETRICS.

We are indebted to Dr. Edis for these notes:

Case of Laparo-Elytrotomy.—By Dr. Arthur W. Edis.—As the following is, I believe, the first case of the operation having been performed in London, it may, perhaps, prove of interest to many at the present time.

M. M., aged twenty, primipara, of medium stature, rather fat and flabby habit of body, an ironer by occupation, was taken in labor on Friday, November 22, 1878, about 6 P. M. When seen by Mr. Edward Fardon, resident obstetric at Middlesex Hospital, about 11 P. M., she was in strong labor.

The pelvis was small, the head felt with difficulty at pelvic brim, the membranes being intact. Miss Thompson, a midwife, was left in charge of the case. About 4.30 A. M. on Saturday, November 23d, the membranes ruptured, but the fœtal head remained arrested at pelvic brim.

About 6.30 A. M., Mr. Fardon being again called to her, gave chloroform and endeavored to apply the long forceps, but could not succeed in getting it to lock.

At 9 A. M., I was sent for. The os was then fairly well dilated, the head presenting at brim in second position, right occipito-cotyloid. The patient had anchylosis of the right hip-joint, the thigh being considerably flexed.

On examination, the pelvis was found to be small and undeveloped, the diameter not exceeding two and a half inches antero-posteriorly. Before resorting to a more serious operation, as the head appeared to be of moderate size, the application of the long forceps was again attempted, but without success. At this time it was noticed that a huge thrombus was distending the right labium. It was then decided to remove her to the lying-in hospital, with the object of securing proper nursing, and other appliances which were impossible in a room ten feet square.

At 11 A. M., a consultation with my colleagues, Dr. Heywood Smith and Dr. Fancourt Barnes, was held.

Our unanimous opinion was, that delivery *per vias naturales*, owing to the contracted condition of the pelvis, and the thrombus in the right labium, even after perforation of the fœtal head and crushing by the cephalotribe, would be attended by extreme difficulty as well as danger.

The question of Cæsarean section or laparo-elytrotomy at once suggested itself, and bearing in mind the danger incidental to the former, and the comparative success of the latter on the continent of America, it was decided to resort to this as giving the patient a better hope of recovery. The fœtal heart was plainly audible to the right of and a little below the umbilicus; the head was felt resting in the right iliac fossa.

Operation.—At 11.30 A. M., chloroform, and subsequently ether, was administered by Mr. Fardon; the patient lying on her back, with her shoulders elevated. The carbolic-acid spray was directed on the abdomen during the operation, and every antiseptic precaution observed. The bladder was emptied by means of the catheter. The uterus being drawn upward and toward the left side, so as to put the skin in the right iliac region on the stretch, a slightly curved incision was made from a point about half an inch above and outside the spine of the pubis, parallel to and an inch above Poupart's ligament, to a point an inch above the anterior superior spine of the right ilium. The several structures met with were divided down to the transversalis fascia. This was then opened, Key's hernia director introduced, and the fascia cut. Any bleeding vessels were secured by Pean's hæmostatic forceps. The peritonæum was separated from the transversalis and iliac fascia, and a staff passed *per vaginam* to raise the vaginal *cul-de-sac* as much as possible into the abdominal wound. An incision was then made into the vagina on to the staff, parallel to the ilio-pectineal line, and the opening enlarged by tearing with the fingers. The os uteri was now drawn up toward the right iliac fossa, the long forceps applied to the presenting head, and the fœtus extracted with very little difficulty.

It was a male, living, weighed seven pounds ten ounces, and measured twenty inches in length. The placenta was expressed through the wound; the uterus contracted well. But little hæmorrhage occurred throughout the operation. On examining the wound carefully, the bladder was found to be torn somewhat on the right side. A catheter was fastened in, and the wound closed by silk sutures, a pad of lint and cotton-wool being then applied, and kept in position by a bandage.

The patient was much exhausted, but rallied fairly after a short time, every precaution being taken to promote warmth and obviate shock. She regained consciousness, and went on well for about thirty hours; urine passed freely through the catheter. The wound was injected with a weak solution of carbolic acid *per vaginam*, the water flowing out freely through the abdominal wound, the three inner stitches having been removed after the first few hours. None of the fluid entered the bladder, leading to the conclusion that the edges of the rent were in apposition. The nursing arrangements were most thoroughly carried out by the matron (Miss Freeman) and a staff of trained pupils.

About 8 P. M. on the 24th, she began to be restless, and showed symptoms of collapse. Wind was passed freely *per anum*, the abdomen being soft and flaccid; but no symptoms of peritonitis or of extravasation of urine supervened.

The temperature only once rose to 102·2° Fahr. The pulse gradually increased in frequency, and, spite of every effort to the contrary, the patient gradually sank and died exhausted at 4.30 A. M. on the 25th, forty hours from the time of operation.

I had arranged everything for a careful *post-mortem* examination, but the husband and mother (Irish) objected so strongly to it, and evinced such fear of its being resorted to, that they insisted on the body being at once removed by the undertaker; consequently, my intentions were frustrated, and I am unable to lay before the profession the exact condition of the structures after operation.

Remarks.—My impression is, that the peritonæum was uninjured; there were no symptoms of peritonitis. Although the bladder was evidently torn, this accident has happened in three other cases where recovery ensued; and I had no reason to believe that any infiltration of urine took place.

The patient was a flabby, unhealthy subject, with very defective rallying powers. The extremities were inclined to be œdematous, and became almost livid under the influence of chloroform.

Had Cæsarean section, or even cephalotripsy, been performed, my belief is that the issue would have been the same. She was emphatically an unsatisfactory subject for operation. The anchylosis of the right hip-joint complicated the operation somewhat, rendering it more difficult than would have otherwise been the case.

The child is living and healthy, and likely to do well. From what I have read of the experience of Dr. Thomas, of New York, as also of Dr. Skene, I believe the operation of laparo-elytrotomy will supersede that of Cæsarean section, and also, in many instances, that of cephalotripsy.

It is unfortunate that the first two cases recorded as having been performed in Europe have ended fatally; but this should not deter us from studying the details of the operation more carefully and giving it a fair trial when opportunity occurs.

Miscellany.

The Boston Medical Library Association.—A glowing account is given, in the "Boston Medical and Surgical Journal" of December 12th, of the ceremonies at the dedication and opening of the new Medical Library building in that city, which took place on the 3d of December. The hall and galleries are spoken of in terms of high praise, as affording every convenience for reading and study. The library already contains ten thousand volumes, "the result of four years' work on the part of a very few young men," among whom Dr. Chadwick has been the most energetic and persevering. The dedicatory address was delivered by Oliver Wendell Holmes, President of the Association, and was of course worthy of the occasion. Prof. Fordyce Barker and Dr. John S. Billings, Surgeon U. S. A., were among the distinguished guests on the platform.

Appointments, Honors, etc.—Dr. Henry M. Jones has been appointed Professor of Midwifery in Queen's College, Cork. William Moore, M. D., has been elected President of the Pathological Society of Dublin for the ensuing year. Dr. Greenfield has been appointed Superintendent of the Brown Institute, London, in place of Dr. Burdon-Sanderson, resigned. M. Marey has been elected a member of the Académie des Sciences of France. Prof. Bolkine has been elected President of the Society of Russian Physicians. Dr. Lichtherm has succeeded Prof. Quincke in the Chair of Medicine at Berne, Quincke having been appointed to the chair left vacant by the death of Prof. Bartels.

Bristowe on Paying Patients in Hospitals.—The Governors of St. Thomas's Hospital having decided to appropriate part of the hospital to paying patients, Dr. Bristowe has addressed the Treasurer a forcible letter on the subject, which is published in full in the "Medical Times and Gazette" of December 7th. Dr. Bristowe, who is senior physician to the hospital, expresses surprise that the arrangement should have been considered without the coöperation of the medical staff, gives his reasons for doubting the wisdom of the plan proposed, and says he would rather see the experiment tried elsewhere than in St. Thomas's Hospital. He will, however, assist the Governors in their endeavor to make it a success. The letter is endorsed and signed by fifteen members of the staff.

The "Index Medicus."—Just as we are going to press we have received the prospectus of a new publication with the above title, to be compiled under the supervision of Dr. John

S. Billings, Surgeon U. S. A., and Dr. Robert Fletcher, M. R. C. S., England. It will be a record of all publications in medicine, surgery, and the collateral branches, and will be published monthly by F. Leypoldt, New York. It will also contain the titles of all valuable original articles that appear each month.

Benzoated Cotton-Wool.—Prof. Volkmann, of Halle, who deserves the highest credit for the remarkable success he has achieved in antiseptic surgery, uses, among other means of protecting wounds, benzoated cotton-wool (three per cent. and ten per cent. of benzoic acid). It is generally used as an external dressing, but in some cases, especially in dressing small wounds, it is applied directly to the surface, and covered with an elastic flannel bandage.

Intra-venous Injection of Milk.—N. Wulfsberg has made a series of experiments on dogs to determine the effect of injecting milk into the veins, as practiced and recommended by Dr. T. G. Thomas, in anæmia. He was unable to preserve the life of the dogs by this means; but they bore the injections well, and it rendered the heart-sounds clear after they had become inaudible from loss of blood. He doubts if milk will answer as well as blood as a remedy for anæmia.

Destruction of Life by Snakes and Wild Beasts.—During the last year the official report on sanitary measures in India states that 21,682 fatal cases of attacks by wild animals occurred in ten provinces. In the largest province, Bengal, the deaths numbered 10,062.

Lady Physicians.—It is reported that two young ladies—American and Austrian—have taken degrees as doctors of medicine at the University of Berne, after passing excellent examinations. A young Swiss lady has taken the degree of Doctor of Philosophy in the same institution.

The American Public Health Association.—We shall give next month a summary of the proceedings of this Association in regard to yellow fever, at the meeting held in Richmond, Virginia, in November last.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from November 14 to December 13, 1878.

Tilton, H. R., Major and Surgeon.—Leave of absence extended two months. S. O. 245, A. G. O., November 12, 1878.

Kinsman, J. H., Captain and Assistant Surgeon.—Granted leave of absence for one month, provided he furnish a proper substitute at own expense. S. O. 94, Department of the South, December 5, 1878.

Koerper, E. A., Captain and Assistant Surgeon.—Granted leave of absence for one month, with permission to apply for three months extension. S. O. 110, Department of the Platte, December 3, 1878.

Lauderdale, J. V., Captain and Assistant Surgeon.—Granted leave of absence until February 1, 1879. S. O. 262, A. G. O., December 6, 1878.

King, J. H. T., Captain and Assistant Surgeon.—Assigned to duty at Fort McIntosh, Texas. S. O. 238, Department of Texas, November 8, 1878.

Paulding, H. O., First Lieutenant and Assistant Surgeon.—Assigned to duty at Cheyenne Agency, D. T. S. O. 140, Department of Dakota, November 25, 1878.

Semig, B. G., First Lieutenant and Assistant Surgeon.—Granted leave of absence for two months. S. O. 260, A. G. O., December 4, 1878.

Skinner, J. O., First Lieutenant and Assistant Surgeon.—Relieved from duty at Camp Bowie, and assigned to duty at Camp Lowell, A. T. S. O. 137, Department of Arizona, November 28, 1878.

Finley, J. A., First Lieutenant and Assistant Surgeon.—Granted leave of absence for one month. S. O. 220, Department of the Missouri, December 3, 1878.

De Loffre, A. A., First Lieutenant and Assistant Surgeon.—Granted leave of absence for four months. S. O. 260, C. S., A. G. O.

Wilcox, T. E., First Lieutenant and Assistant Surgeon.—When relieved, to proceed to obey the orders he has received from the War Department. S. O. 221, Department of the Missouri, December 6, 1878.

Taylor, B. D., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort A. Lincoln, D. T. S. O. 140, C. S., Department of Dakota.

Barnett, R., First Lieutenant and Assistant Surgeon.—Leave of absence extended one month. S. O. 99, Division of the Missouri, December 5, 1878.

Gardiner, J. D., First Lieutenant and Assistant Surgeon.—Assigned to duty at Camp Huachuca, A. T., as post surgeon. S. O. 137, C. S., Department of Arizona.

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Original Communications.

ART. I.—*On the Pathology of Yellow Fever, with some Remarks on its Cause, and the Means for its Prevention.*

By Dr. H. D. SCHMIDT, Pathologist of the Charity Hospital of New Orleans, and Member of the American Neurological Association.

WHEN, in the year 1867, the yellow fever made its appearance in New Orleans, and assumed the frightful dimensions of an epidemic, I resolved to study the nature of this disease as far as time and opportunity would permit. Although engaged at that time in active practice, I nevertheless managed, during the first part of the epidemic, to make a few autopsies at the Charity Hospital, and to examine microscopically portions of different organs thus obtained, while at the same time I carefully studied the microscopical character of numerous specimens of black vomit from my private patients. The results of these observations, together with the conclusions I had drawn from them, I embodied, at a time when the epidemic had attained its greatest height, in an article afterward published in the November number of the "Southern Journal of the Medical Sciences." But, as may be seen from this article, the so-called "fungi theory," which, during the cholera epidemics of 1865 and 1866 had gained some ground in the medical world of Europe, had also taken hold of my mind, and had shaped my views regarding the cause and pathology of yellow fever. Although, therefore, the observations described in this article were correct, their interpretation was in some measure erroneous. And it was only during the second part, or decline, of the epidemic, after having convinced myself of the fallacy of this theory by a closer examination of the various organs—especially of the mucous membranes of the alimentary canal and of the respiratory passages, even up to the frontal sinuses, obtained from a more considerable number of careful autopsies, and forming a second series of observations—that my labors in the pathology of yellow fever really commenced. But even these examinations I regarded as too incomplete to build upon them a definite theory of the pathology of yellow fever; for they had been confined to specimens of organs in the fresh condition. The mere microscopical examination of a fresh fragment of an organ gives, in most instances, only an idea of the nature of the tissues of which the particular organ is composed, without showing the relationship of these tissues in the construction of the organ itself. A microscopical examination of any organ, therefore, must be considered incomplete unless it has equally been made on thin, transparent sections of artificially hardened portions of it, in which, not only the relationship of the composing tissues, but also the normal or pathological condition of all the parts is exhibited to the eye of the observer.

During the minor epidemics succeeding that of 1867, besides making a considerable number of autopsies myself, I witnessed many others made by the former house surgeon of the Charity Hospital, my friend Dr. A. W. Smyth, or by the hospital students. But the microscopical examinations which I made of the various organs in all these instances were also confined to the fresh specimens, and it was for this reason that, though taking careful notes of the observations, I never prepared them for publication. Another reason was that my hours of leisure were taken up by the investigation of other subjects, in which I had a deeper interest. The only reference I have made to the results of my former examinations into the pathology of yellow fever was in connection with the pathology of Bright's disease, forming the subject of a prize essay, which I wrote for the Medical Association of the State of Alabama, for their annual meeting in 1876.

When, in the month of July, 1878, the yellow fever again appeared in New Orleans and once more rapidly assumed the character of an epidemic, I resolved, in virtue of my office as Pathologist of the Charity Hospital, to institute this time a series of researches into the pathology of the prevailing disease on an extended scale, and to make them as thorough as circumstances would permit. For this purpose I not only performed quite a large number of careful autopsies, but, moreover, collected and prepared for subsequent microscopical studies an amount of material, representing portions of the most important organs of the body, sufficiently abundant to enable me to draw correct and definite conclusions from their examination.

It must be obvious that the macroscopical and microscopical examinations of a few organs, limited to only a few cases, are entirely insufficient to the study of the true character of any disease, especially to the study of the pathological changes taking place successively during the different stages of the disorder. This is especially the case in yellow fever, a disease running an unusually rapid course, and terminating very frequently in a few days either in recovery or death; a disease in which the gravest pathological processes, such as fatty degeneration, etc., are observed to take place within this short space of time; processes which, when occurring in other diseases, would require months, or even years, before causing the death of the patient.

In order to enable the medical profession of our country to form an approximate idea of the extent of these labors, I shall, before passing to the principal subject of this communication, render a brief account of them as far as they have progressed up to this time. During the whole course of the last epidemic, I made careful autopsies on *thirty* cases of yellow fever. I might have doubled and tripled this number if I had chosen to make these *post-mortem* examinations many hours after the death of the patient; but, as I was anxious to get the material as fresh as possible, I selected only those cases that died in the course of the morning. Thus the greater part of the autopsies were made from three quarters to three or four hours after death; in only a few instances the time extended to five or six hours. Out of these thirty cases, I preserved portions of the most important organs—or even the whole organ itself—of twenty-three cases. The manner in which these specimens were preserved is as follows. After the organ is removed from the body, those parts most suitable for the investigation are cut out, and after the removal of all superfluous tissue, such as areolar tissue capsules, etc., put into a solution of bichromate of potassa—two ounces of the salt to eight pints of water—for the purpose of hardening. During this process the solution has to be renewed from time to time, as otherwise the preparation will easily undergo decomposition. The first renewal of the solution must be made as early as the second or third day. After the preparation has been hardened to a certain degree in this solution, it is put into a weak solution of chromic acid, by which it will be rendered sufficiently consistent for making thin transparent sections, serving for final microscopical examination. It will be seen that a great deal of care and attention is required, not only to keep such a large amount of material from decomposition, but also to impart to it the exact consistence required to make a successful microscopical section; this is especially the case with the brain and spinal marrow.

The principal organs which are thus represented in my collection of preparations are the brain, spinal marrow, semilunar and other sympathetic ganglia of the solar plexus, ganglia stellata, lymphatic glands of mesentery, supra-renal bodies, liver with gall bladder, kidney, spleen, bladder, stomach, intestines, and lungs. Most of the organs I examined microscopically in their fresh condition. A second examination was made after they had remained a few days in the preserving fluid, and a third and final one on the microscopical section of the hardened specimen.

The thin transparent sections of most of these organs were made in two or three different directions. Thus, taking the kidney as an example, I made sections, cut at a right angle with the surface, and as much as possible parallel with the straight tubules, showing these in their entire course, and the connection of the parenchyma with the capsule; while, on the other hand, sections were made parallel to the surface, and at various depths from it, exhibiting the tubules cut horizontally. I have now already cut eighty specimens into thin transparent sections, representing the organs in a number of different cases. Of each specimen I have made, on the average, about thirty sections or more, amounting to about twenty-five hundred sections in all. The greater part of them have been stained, to be mounted in Canada balsam; the rest are left uncolored, to be mounted in glycerine. They are kept in alcohol, diluted with fifty per cent. of water; each kind in a separate small bottle, properly labeled, and ready to be mounted at any time. A number of them I have already permanently mounted in balsam. These sections, thus far prepared, hardly represent one half of the material which I have collected and preserved; and their number, including those large ones of the brain, pons and medulla oblongata, finally amount to five thousand or more. It is only from the examination of such an abundant material that correct conclusions may be drawn.

It would have been impossible to me to do all the work to which I have alluded above, together with the examinations of the blood on the living patient, and other observations to be mentioned hereafter, if I had still been engaged in an active private practice, as I was during the former epidemics; as this would have taken up almost all my time, and left me no rest for any investigations on an extended scale. But having been for several years crippled to a certain extent by chronic rheumatism, and unable to perform the duties of a general practitioner, I have of late hardly done any outdoor practice at all; and the number of cases of yellow fever which I treated during the last epidemic was, therefore, limited to the families of some of my former clients. This small number of cases, however, together with some others occurring in my own family, and those which I observed in the wards of the Charity Hospital, convinced me that the prevailing disease was the same old "yellow fever" which I had observed and treated in former epidemics, showing distinctly all its characteristic features.

Not being wearied by the care and anxiety attending a private practice, I had ample time to pursue these investigations in an even tenor, enabling me to observe carefully all that was passing around me, and relating to the nature, cause and spreading of the disease to neighboring communities and States. I also read the numerous communications and contributions to "yellow fever science," appearing in the daily newspapers, coming from near and far, and containing both sense and nonsense; while at the Charity Hospital I made my occasional rounds through the wards for the purpose of observing the general course and character of the disease.

Of the results of my observations, I spoke but little even to my professional friends and colleagues of New Orleans, as I feared that an imperfect statement or opinion on my part might give rise to false ideas and theories; my sole object in view being to study and digest most thoroughly, not only the pathology of the yellow fever, but everything else relating to it, for the purpose of writing an elaborate treatise on the subject, embracing its cause, nature, clinical phenomena, pathology and rational treatment, to be presented to the profession in the course of next spring.

Thus, I steadily advanced with my labors, remaining even undisturbed by the publication of several incorrect observations regarding the cause and pathology of the disease in question, made by some medical gentlemen, and reported by the daily newspapers, until I read in the "New Orleans Times" an extract of a paper relating to the cause and pathology of yellow fever, which had been read before the American Public Health Association at their sixth annual session at Richmond, Virginia, by Dr. J. G. Richardson, of Philadelphia.

The observations which Dr. Richardson made on one or perhaps a few specimens of yellow fever kidney, which, as I understand, were sent to him from a distance, and also on some specimens of blood obtained from yellow fever patients—I know not whether from living or dead ones—and sent to him hermetically sealed, are not such as to warrant the interpretation which he puts upon these facts, which conflicts in such a manner with my own observations as to induce me to break the silence I have hitherto observed in order to counteract the influence which a theory such as Dr. Richardson propounds might exert upon a rational pathology and treatment of yellow fever. As long as such statements and theories proceeded from other sources there was no danger of perverting the medical mind on a subject so important as the one under discussion ; but when theories based upon the above-mentioned observations, which in themselves signify very little, are propounded to a large body like the American Public Health Association, embracing a considerable portion of the intelligence of the medical profession of our country, by a gentleman like Dr. Richardson, who has pursued microscopical pathology as a special study for quite a number of years, I feel myself in duty bound to protest.

The presence of his dumb-bell-shaped *bacterium sanguinis* in the yellow fever blood, sent to him hermetically sealed, requires no explanation, as it is obvious that those beings were formed, no matter from what source, after the death of the patient. The accumulations of certain granules which he observed filling up the convoluted tubules of the kidney represented simple granules derived from the disintegrated epithelium, and are found in the straight tubules as well as in the convoluted. With the exception of his "fungous spores," I can find nothing new in Dr. Richardson's observations. An explanation of the possibility that bacteria really may be met with in the blood-vessels of some organs, I shall give in its proper place. In fact the degenerations taking place in several organs during the course of yellow fever have been known for quite a number of years ; some of them may even be found recorded in the literature of this disease as far back as twenty-five years. It is only a more thorough and accurate study of the nature of these degenerations, and of the relationship in which they stand to the clinical symptoms, which has been neglected. And this can only be accomplished by a strictly systematic course of investigations, made upon a large number of cases, in which the clinical symptoms of each fatal case are closely observed, to be subsequently compared with the results of accurate microscopical examinations after death.

I shall now proceed to give a brief description of the pathological changes taking place in different organs during the course of the disease, such as I have found them, both by my former examinations and those recently made upon a portion of the material collected and preserved during the last epidemic, as mentioned above. But it must be recollected that I have a considerable portion of material still left, as yet not subjected to a final examination, which may disclose facts unknown to me at present. For this reason the conclusions to be drawn from the facts already known cannot be regarded as final until all the material in my hands is carefully worked up and examined.

The macroscopical changes occurring in the organs during the course of yellow fever, and revealed by an autopsy, are as follows: In all fatal cases of this disease, the skin becomes jaundiced either shortly before death or during the act itself, though in many instances the jaundice appears during the course of the disease. The jaundice of the skin after death, however, is never so intense as is observed in cases of biliary or hepatogenous jaundice. In yellow fever the jaundice extends from the head downward over the trunk and lower extremities. It is for this reason that in cases where it does not extend over the whole body, as they are met with during the decline of the epidemic, the legs and feet frequently remain untinged. In well-marked cases all tissues and fluids of the body are tinged yellow, but, as remarked before, never so intensely as I have observed in severe cases of cholæmia.

In opening the cranial cavity the enveloping membranes of the brain, with the fluids they contain, are in most cases also found of a yellow tinge. The dura mater, with the exception of this tinge, is usually found in the normal condition; the pia mater, on the contrary, is almost always observed in a greater or lesser state of hyperæmia. Not only the veins are filled with blood, but in most instances also the basilar and cerebral arteries, with their arterioles and capillaries. The arachnoid membrane is very frequently found opaque, or even slightly thickened by exudation, and the subarachnoid space filled with serum. In such cases the serous effusion extends into the substance of the brain, showing a condition of œdema of this organ. In many cases the hyperæmia extends through the whole substance of the brain. The ventricles also are mostly filled with a serous fluid, and the blood-vessels ramifying over their surface congested. The substance of the brain is frequently found œdematous, and slightly swollen by the serous infiltration. The pia mater of the spinal marrow is in most instances in a state of hyperæmia, but only in the lumbar and cervical regions, particularly in the former; sometimes opacity of the arachnoid membrane is observed, though not throughout.

In the thorax the lungs present mostly a normal appearance; sometimes, smaller or larger portions are found congested or in an emphysematous condition; all other pathological changes, however, met with in these organs, do not properly belong to yellow fever. The pericardium, with the exception of a yellow tinge, is usually normal; but the fluid contained in its cavity, also of a yellow tinge, has sometimes appeared to me increased in quantity. The heart in uncomplicated cases of yellow fever presents, generally, a normal appearance in form and color; but in many cases its muscular tissue, when cut, is of a pale yellowish hue and rather soft in consistence, in some cases even to such a degree as to be quite friable and easily torn. In these instances its reddish flesh color has entirely disappeared, and yielded to a pinkish yellow tint, indicating a high degree of fatty degeneration.

In the abdomen, the liver is in all cases found to be affected with fatty infiltration, or even degeneration to a lesser or greater degree. In the former epidemics, I observed that the fatty metamorphosis of the liver did not extend in all cases throughout the whole organ; on the contrary, a number of cases were met with, in which one part of the organ had undergone this change, indicated by its yellowish color, while other portions were found in a simple state of congestion, and smaller portions, even, still presented a normal appearance. Moreover, when the organ was cut and pressed, minute drops of bile could in some places be still observed to issue from the minute bile-ducts. During the last epidemic, however, the fatty metamorphosis of the liver generally extended throughout the whole organ, and in such a degree as to allow the parenchyma to be easily torn. Only in a limited number of cases the condition of what is termed "nutmeg liver" was observed, while in others the congestion was confined to the inter-lobular vessels. The gall-bladder contained in almost every case a quantity of black, tar-like bile; its walls were thickened by œdema.

Almost all those veins of the abdominal viscera contributing to the formation of the portal vein were invariably found more or less distended with blood. In many cases this congestion extended into the minute venules of the intestines.

The mucous membrane of the stomach presented in all cases, more or less, that peculiar form of congestion to be described hereafter; and, with only one exception, the organ itself was found to contain black vomit; in the exceptional case, the patient had vomited the black fluid shortly before he died.

The spleen presented a normal appearance in the majority of cases, and when cut its pulp was observed to assume a scarlet hue; in some cases only, it appeared enlarged, or its pulp preserved its original dark reddish-brown color.

As regards the kidneys, they presented, perhaps in the majority of cases, a more or less abnormal appearance, both in consistence and color, though of normal size; only in a few instances they appeared enlarged. When a longitudinal section was made through one of these organs, it was generally found that the medullary substance only represented by straight tubules had preserved its fleshy color, while the cortical substance had assumed a more or less yellowish tint. However, this tint did not often extend throughout the whole organ, for in many cases there were portions left presenting almost a normal appearance. In a number of cases the kidneys appeared entirely normal, so that in some instances I did not care to preserve them.

The bladder was generally found in a normal condition; in a few cases only a slight hyperæmia was observed to exist in the mucous membrane near its outlet. In about one half of the cases it still contained a smaller or larger quantity of urine; in one case it was even found completely distended with this fluid.

Having thus far given a brief sketch of the general appearance of the principal organs revealed by a *post-mortem* examination, I shall now pass on to the description of the minute pathological changes taking place in their structure during the course of the disease; and commence with that peculiar, unstable but most important glandular organ, the blood, which, while circulating in a liquid state through the organism, sustains the life of all its organs and tissues.

The Blood.—During the epidemic of 1867, I examined some specimens of blood which I obtained from hæmorrhages of the nose, occurring in some of my private patients. As I could only examine them at my office, I was obliged to collect the blood in small vials for transportation. With the exception of the greater portion of the colored blood-corpuscles having assumed a crenated or so-called thorn-apple form, I was unable to detect any abnormal condition in these bodies, or any foreign body in the whole specimen. In a number of other specimens of blood, taken after death—during this and succeeding years—from the larger superficial veins of patients at the Charity Hospital, I was equally unable to detect anything foreign to this liquid. The blood-corpuscles in general exhibited the same characters and phenomena as those of healthy blood after being removed from the circulation and put upon the glass slip for microscopical examination. Nevertheless, in one of these specimens I observed some phenomena in a small number of colored corpuscles which, at that time, I was unable to explain satisfactorily to my mind without entering into speculations. These blood-corpuscles presented two or three apparent openings, or rather solutions of continuity, upon their surfaces, manifesting themselves by a bright, light pinkish color. The most satisfactory explanation which I am able to give at present is that the phenomenon was caused by the presence of minute vacuoles in the protoplasm of the blood-corpuscle, such as I afterward discovered on a larger scale in the giant blood-corpuscles of amphiuma tridactylum. On a few other colored corpuscles of the same specimen, I detected the membranous layer being separated from the rest of the protoplasm, a phenomenon which I have since observed in the colored blood-corpuscles of the frog, and described, together with the vacuoles in the blood-corpuscles of the amphiuma, in my paper on "the Structure of the Colored Blood-Corpuscles of Amphiuma Tridactylum, the Frog, and Man," published by the Royal Microscopical Society of London in the May and July numbers, 1878, of their Journal. As the blood in the above cases had been taken from the dead body, it is evident that the phenomena were caused by *post-mortem* changes in the structure of the blood-corpuscles; and it is for this reason that I attach no importance to the observation.

During the month of August, in the midst of the last epidemic, I instituted a series of examinations of the blood of living patients. The manner in which these examinations were made was as follows: With my microscope placed near one of the windows of the ward in order to obtain the best light, and everything else required for the examination, such as glass slips, covering glasses, etc., in perfect order, I went to the bed of the patient and made a small incision into his arm, to obtain the blood. As I knew from my former researches upon the normal blood that the colored blood-corpuscles of the first drop, issuing from the minute vessels of the skin, are more liable to change their form when placed upon the glass slide, than those coming from deeper parts, I took the precaution of making no use of the first drop. For this reason, the skin was again cleanly wiped, and a small portion of the blood next appearing in the incision quickly—at the bedside—placed upon the glass slip, and covered with a very thin and small covering glass. As soon as covered, it was taken to the microscope for examination.

Previous to these examinations of the blood of the living patient, I had observed a certain phenomenon in the liver and in some other organs, consisting in the escape of free hæmoglobin from the capillary vessels, and its absorption by the neighboring glandular cells; and, in accordance with this observation, I somewhat expected to meet with free hæmoglobin in the blood, supposing its escape from the colored blood-corpuscles to be caused by the specific poison of the disease. And by coincidence I really found, in the first specimen which I examined, some of this coloring material, which, however—as must be remembered—is a phenomenon sometimes even met with in the examination of normal human blood. In this specimen, moreover, I observed that the greater portion of the colored blood-corpuscles presented a crenated form, while the rest was rapidly assuming it. In the rest the blood appeared perfectly normal. Not a single bacterium or spore of a fungus was I able to discover, though I honestly endeavored to do so. In the next specimen of blood which I examined, and which was obtained from the same patient, and from the same incision, I did not even meet with the free hæmoglobin. But, as in the first specimen, the greater portion of the colored blood-corpuscles of this also had already assumed the thorn-apple form when first seen under the microscope, and the rest was doing so quite rapidly. In this manner I examined the blood of fifteen living patients, representing the different stages of the disease, that is from the second day, either to one half hour before death, or to convalescence. Two specimens of blood were examined in each case; in some even as many as three or four, but on different days. In all these cases with the exception of two, the colored blood-corpuscles presented the crenated form, while they were mostly arranged in rolls, forming irregular anastomoses. In a number of these cases the blood-corpuscles had already assumed this form and arrangement when placed under the microscope; this was very decidedly the case in a specimen of blood taken from a patient in the act of dying. In the two exceptional cases, the colored blood-corpuscles presented an appearance as normal in form and character as I ever beheld, and moreover retained it for a considerable time. The patients were both Germans, the one a boy of fifteen years, who had arrived in New Orleans by an English steamer three weeks before he was taken with the disease; his blood was examined on the fourth day, during the second stage of the disease, and he recovered. The other was a strong and hardy young man of twenty-two years, a gardener by profession, who had arrived from Germany during last February; his blood was examined on the second day of the disease, when he was very restless and slightly delirious; he died on the fifth day.

Two specimens of blood, obtained two hours after death for the purpose of determining the relative quantity of fat they contained, the one from the portal vein, the other from the right side of the heart, were examined. These presented nothing remarkable. A portion of the colored blood-corpuscles had assumed the thorn-apple form, while the rest had preserved their natural appearance, mostly adhering to each other, forming rolls. No bacteria or fungi spores were found.

The phenomenon observed in the colored blood-corpuscles of man, consisting in various changes of form, is not characteristic of any particular disease, for it is frequently met with in normal blood. These changes, which I have also observed in the large nucleated colored blood-corpuscles of the amphibia, are caused by a contraction of the protoplasm of the corpuscle, in most instances, when placed under abnormal conditions, as when the blood is removed from the circulation. But, as, in many cases, a few crenated corpuscles are met with in the midst of a minute drop of the most healthy blood, when quickly placed under the microscope, it is possible that an insignificant number assume this form while still circulating through the vessels. For this reason I have been inclined to regard these changes of form as retrogressive in character, indicating a loss of vitality on the part of the blood-corpuscle, a view which I have expressed in my paper treating of the structure of the blood-corpuscles, before referred to; and the great rapidity with which these corpuscles changed their normal form, in the cases of yellow fever just described, appears to corroborate my view. Whether the same phenomenon may be observed in other diseases, especially in fatal cases, and shortly before death, must be determined by further investigation.

As regards the colorless blood-corpuscles of the above-mentioned specimens of blood, nothing especially abnormal could be discovered. In one specimen only, taken from the blood oozing from a slight wound of the ear of a patient, and during the second stage of the disease, the relative number of these corpuscles appeared to have slightly increased, and amœboid movements were observed in some of them. In the other specimens, most of the colorless corpuscles observed belonged to the smaller kind, performing no amœboid movements, their number being in a normal proportion to that of the colored corpuscles.

The Liver.—During this last epidemic, the pathological changes observed in the liver extended, in almost all cases ex amined, throughout the whole organ, and generally in a high degree. They appear to represent not only that condition known as fatty infiltration, but, moreover, a true fatty degeneration of the protoplasm of the hepatic cells themselves. In most cases the fatty infiltration is so great that, in a thin section taken from the fresh organ and placed under the microscope, the hepatic cells appear almost completely hidden by larger or smaller fat-globules, and in order to get a fair view of them it is necessary to treat the preparation with ether. It is asserted by most pathologists that in the process of fatty infiltration there is no fat deposited outside of the hepatic cells, and that the free fat-globules observed are derived from those cells which are cut or torn by the knife in the making the section. This may be true in cases of pulmonary consumption, or other exhausting diseases, in which the process of fatty infiltration of the liver is slowly progressing, and sufficient time is left to the cells for absorbing the fat deposited from the blood into the parenchyma. In yellow fever, however, where this process frequently advances to its highest degree in only a few days, and where, at the same time, as I suppose, the protoplasm of the cells degenerates, rendering these minute organs incapable of absorbing the whole quantity of fat deposited from the blood, it s not at all improbable that a portion of this substance remains in a free condition, and is lodged in the interspaces of the parenchyma.

In thin microscopical sections made from a yellow-fever liver, the protoplasm and the outlines of the hepatic cells appear paler and less distinct than in sections obtained from livers affected by ordinary fatty infiltration. I have made sections of the latter, stained and mounted in Canada balsam, in which the cells and their nuclei have absorbed sufficient coloring material, and accordingly appear very distinct in contrast to the large fat-globules which they contain. The hepatic cells of yellow-fever livers, on the contrary, do not perfectly absorb the carmine or other coloring matters, in consequence of which their outlines and nuclei appear rather indistinct, and the fat-globules contained within do not show in strong relief. The partial loss of their absorptive power must be owing to a commencing degeneration of the protoplasm; the same process, as will be seen hereafter, is taking place in the kidneys.

When the sections taken from different livers are examined under the microscope, it is found that the cells in the vicinity of the ultimate branches of the blood-vessels appear much darker than the rest of the parenchyma, exhibiting, however, not exactly the same color in the different livers. In some cases the color is of a reddish brown, and is owing to the presence of hæmoglobin escaped from the blood through the walls of the capillaries and absorbed by the hepatic cells lodged in their meshes, and surrounding an ultimate branch of one or the other blood-vessel. Sometimes the color is of a greenish brown, probably depending on the presence of bile in these cells, or on the presence of both hæmoglobin and bile, appearing in the form of dark-brown spots to the naked eye. In some cases the intra-lobular veins are surrounded by a mass of colored cells; in others, again, the same is true of the inter-lobular veins.

It is very important to ascertain the progress and particular character of these changes in the parenchyma of the liver during the different stages of the disease; for a more definite knowledge of the whole process of fatty infiltration or degeneration, as it occurs in the yellow-fever liver, could only aid in the diagnosis, prognosis, and treatment during the different stages of the disease. But, as the course of yellow fever is of so short a duration, and, moreover, as the majority of fatal cases are generally in persons of otherwise healthy and robust constitutions, it is rare for the patient to die from another disease before the pathological changes in the liver have assumed a fatal character. This circumstance, however, should form no obstacle to making an attempt to solve this problem, particularly as I have observed that the different organs are not in all cases affected in the same degree, showing that the death of the patient may be caused by the arrest of function in one or another organ, while a third still maintains sufficient integrity for the proper performance of its functions.

Regarding the minute blood-vessels of the liver, I am unable to make any positive statement before I have examined all the specimens collected. In those sections hitherto examined the capillaries were generally found empty, though in several instances they were filled with blood-corpuscles. The same may be said of the smaller intra- and inter-lobular veins; though, in many cases, I have found hepatic veins, sufficiently large to be seen by the naked eye, filled with fibrinous clots.

In the cases examined, I have failed to detect any products indicating the inflammatory process; and, unless I should meet with such products hereafter, it may be judged that the disturbance in the circulation of the liver is limited to a state of hyperæmia.

Though I might farther extend my statements regarding the condition of the liver in yellow fever, I prefer to postpone the rest until I shall have examined the remaining material; particularly as, from all I know, the liver seems to be the first of all secreting organs to be affected by the poison, either directly through the blood, or through the medium of the nervous system, involving at the same time some of the neighboring organs. But, before closing my remarks on this organ, I shall mention some observations bearing upon the bacteria question referred to before.

In examining some horizontal sections of liver from the second case, I discovered collections of small granules, slightly larger and of a greater refractive power than is generally manifested by the organic granules of the protoplasm of glandular cells, in the intra-lobular and inter-lobular veins. Not having met with these or similar bodies in some vertical sections previously made and examined from another piece of the same liver, I was inclined to regard them as bacteria; and such they probably were, though I could not account for their presence in this place. But, reflecting on the phenomenon, I recollected a particular piece of the same liver which I had found floating upon the preserving fluid—a solution of bichromate of potassa—about three or four days after it had been put into it, and in the middle of which, on account of its large size, decomposition must have commenced. The gases formed by this process rendered the piece lighter, and made it float. Being cut into smaller pieces, however, these sunk to the bottom of the jar, and, when afterward removed into a solution of chromic acid, acquired the proper consistence for the making of thin sections. Now, if these minute organisms, foreign to the blood, had likewise been met with in sections made from other pieces of the same liver, it might be supposed that they had been present in the blood-vessels before the pieces were put into the solution of bichromate of potassa; but, as this was not the case, I can not but think that they were a product of fermentation, commencing in the middle of the piece, to which the solution had not perfectly penetrated, and to which the germs had been carried by its water. After the transfer of the pieces into a solution of chromic acid, the organisms were killed by the severer effects of this fluid.

In a section of the spleen of the same case, I likewise found these bodies in the smaller blood-vessels; but, as in the former case, the piece from which the section had been made had also been found floating upon the preserving fluid, and the circumstances connected with it were in every respect the same. After the experience thus acquired, I took precaution always to cut the pieces smaller before putting them in the preserving fluid; and except in these two instances I have in no other section met with these or similar organisms.

The Stomach.—The condition in which this organ is found, in fatal cases of yellow fever, is brought about by the disturbance of the circulation in the liver, and therefore consists simply in a venous congestion. The congestion does not extend beyond the minute venous radicles which—arising from the capillary network surrounding the gastric glands—form, directly under the epithelium, minute and very regularly arranged anastomoses. From the latter somewhat larger venules take their origin, which, in a vertical direction, descend between the gastric glands, to terminate in a network formed by still larger vessels, and extending between the glandular and muscular layer of the mucous membrane. From this network, finally, larger veins originate, which, penetrating the muscular layer, form, by joining others of their caliber, those veins seen passing through the muscular coat of the stomach. Thus the congestion of the mucous membrane of the stomach, which, strange enough, is looked upon by a number of physicians as the most prominent symptom of yellow fever, may be directly traced back to that of the portal vein and its branches.

I have made a large number of thin microscopical vertical sections of the walls of the stomach, and others in a horizontal direction, removing the upper layer of the epithelium. In these sections, the venous radicles above described are found filled with blood-corpuscles; and, moreover, the hæmoglobin of the latter is in many places observed to have escaped through the walls of the vessels, and to have been absorbed by the surrounding epithelial and glandular cells. The same phenomenon, it will be remembered, I observed in the liver. Hitherto I have, with the exception of one case, not been able to discover any lesion upon the surface of the mucous membrane of the stomach, though it is reasonable to expect to find solutions of continuity in its epithelium, caused by the escape of blood from the rupture of some of those minute venous branches above described. When the mucous membrane of a fresh stomach is examined, it is found that the congestion does not extend uniformly throughout the whole membrane, or through portions of it, but, that it rather proceeds from a larger or smaller number of small centers or spots characterized by their red color, and resembling an extravasation of blood. In examining these spots with a loupe of five diameters amplification, it will be found that they are caused by an intense congestion of those venules above described as arising from the capillaries, and forming beneath the upper layer of the epithelium minute and very regular anastomoses, and that the spots, representing small districts of the network of anastomoses, indicate the place where the venules join those slightly larger and descending venous branches. From these centers the congestion extends in a much less degree, either gradually to be lost, or to pass into another congested district. It is thus found that the congestion presents no uniform character, but extends irregularly over larger or smaller portions of the stomach. Neither is it found limited to any particular region of the organ. The small centers of congestion, from which undoubtedly the hæmorrhages known as "black vomit" proceed, are in most instances found between and alongside of the plicæ; sometimes, however, also nearer to the fundus or to the pyloric extremity. In one case only, I found a small gangrenous spot in the mucous membrane.

Black Vomit.—In connection with the stomach, I shall briefly describe that peculiar hœmorrhage of its mucous membrane known as "black vomit." When black vomit is left standing for a short time, it separates into two parts, the one representing a thin mucoid fluid, and the other consisting of its solid parts settling to the bottom of the vessel, and resembling coffee grounds. This part of the black vomit consists—besides the disintegrated matters of food, such as fat, muscular fibers, etc.—mainly of the constituents of blood, and epithelium. The constituents of the blood are in part represented by a considerable number of colored blood-corpuscles, being now deprived of their coloring material, the hæmoglobin. They therefore appear perfectly colorless, and are characterized by a delicate double contour. In some cases they have preserved their normal diameter; in others again, this has decreased. But, in all the numerous cases I have examined, the corpuscles were found deprived of their hæmoglobin, without regard to their diameter. The other part of these constituents consists of the hæmoglobin escaped from the blood-corpuscles, and appearing here in the form of yellow patches. Generally, these patches are found in company with groups of blood-corpuscles, or even inclosing them. Besides these elements, a number of colorless blood-corpuscles and epithelial cells, or their remains, are also met with.

In order to prove that these yellow patches in reality represent the coloring matter of the blood-corpuscles, instead of bile, as has been stated by other observers, I filtered a quantity of black vomit, and allowed the solid parts remaining behind upon the paper to dry, for the purpose of applying the well-known test of Teichmann. Accordingly, I placed a small portion of the dried material, about the size of the head of a pin, upon a glass slip, and, after rubbing it with a trace of table salt into a fine powder, put a thin covering glass upon it. Then a drop of glacial acetic acid was allowed to run under the covering glass, and the whole preparation gently warmed over the flame of a spirit-lamp until small bubbles of gas were observed to be formed. The preparation was then left to cool. A subsequent microscopical examination showed a number of crystals of the muriate of hæmatin—the so-called hæmin crystals of Teichmann—which had been formed by the process, and which are universally looked upon as the best proof of the presence of hæmoglobin. In some specimens of black vomit, however, I have found hæmatin crystals already formed.

Almost in all specimens of black vomit, certain fungous growths are met with. The most common is the so-called yeast-plant, or *torula cerevisiæ.* If the specimen is left standing, other species and families of fungi will be found developed. Some importance has been attached to the presence of these organisms in the black vomit, touching the cause of yellow fever, an error which I myself committed during the first part of the epidemic of 1867, as before stated. As these fungi get into the stomach of the patient with the food, or the air swallowed, they have no relation to the cause of the disease. I still regret the time which I have spent in their cultivation, as I might have applied it to more practical examinations.

The Intestines.—As the veins of the intestines are like those of the stomach, tributaries of the portal vein, they are in most cases of yellow fever found in a state of congestion, which, like in the stomach, may extend to the venules of the mucous membrane. But, as there is a greater distance between these vessels and the liver than between the latter and the venules of the mucous membrane of the stomach, the congestion rarely attains the same degree in the intestines as it does in the stomach. Nevertheless, in a small number of cases, it is sufficiently intense to give rise to hæmorrhages; in these instances, the mucous membrane presents the same appearance as in the stomach. Generally, however, the congestion does not extend throughout the whole track of the small intestines, but remains confined to their upper portion. As regards the large intestines, the congestion rarely extends to the colon, for the reason above stated.

The Spleen.—The microscopical examination of a small portion of the pulp of this organ in the fresh condition reveals, with the exception of collections of black pigment, nothing abnormal, either in the colored blood-corpuscles, or in the elements of the proper parenchyma of the pulp itself. A number of free elementary granules, about $\frac{1}{1200}$ mm. in diameter, performing the well-known Brownian movements, are also observed. But as these movements are the same as those frequently observed in the granules of protoplasm of organic cells, both animal and vegetable, and moreover in normal spleens, I attach no value to this observation.

The Kidneys.—I have already remarked that in some cases the kidneys presented a perfectly normal appearance, and that in others the degeneration appeared not to have extended throughout the whole organ. This circumstance offered a better opportunity to study the progressive stages of the process of degeneration than the condition of the liver. The examination of a number of sections of kidney from different cases shows that the degeneration of the organ is always preceded by hyperæmia. Thus, I found, in the sections of one case, the inter-lobular blood-vessels, and even a number of the vessels of the glomeruli, filled with blood-corpuscles, while at the same time the degeneration of the epithelium of the uriniferous tubules had only progressed to a certain extent. A few of the tubules also were observed to be blocked up by short albuminous cylinders of a yellow color.

In other cases, in which the degenerative process had progressed farther, the cells of the epithelium of the uriniferous tubules were observed to disintegrate, and the granules of the cells, set free by the degeneration of the protoplasm, to collect in opaque masses, apparently held together by mucus. These granular masses, however, were not so numerous as might perhaps be imagined; at any rate, in all the specimens which I have hitherto examined, they have not existed in the enormous proportion of 20 or 30 per cent. of all the tubules, as Dr. J. G. Richardson has estimated. The individual granules composing these collections, and measuring $\frac{1}{1200}$ mm. in diameter, resemble in every respect the granules of the epithelial cells in the vicinity; and, as the disintegration of these cells could be distinctly seen, there remains no doubt that the granules of the latter were identical with those accumulated in masses; neither had these granules any close resemblance to those which I described as having met with in some horizontal sections made from a certain piece of liver. With this statement, I dismiss Dr. Richardson's "fungous spores," discovered in yellow-fever kidneys.

Thus far, the pathological changes taking place in the kidney during yellow fever may be regarded as a granular degeneration. However, in some specimens, collections of larger and smaller fat-globules are also observed in some places within the uriniferous tubules, indicating that here the process of degeneration had advanced to the formation of fat. The granular as well as the fatty collections are not confined to any particular part of the tubules, for they are met with in both the convoluted and the straight, mostly, however, in the cortical substance. Thus we see that, as in Bright's disease, fatty degeneration of the kidney occurs also in yellow fever, though not to the same extent.

Although the collection of granules into defined masses is observed only in comparatively few places, it does not follow that the granular degeneration is confined to these localities. On the contrary, in other portions of both the convoluted and straight tubules, the cells of the epithelium may be observed to separate from each other, and many of them also to be in a state of disintegration. A considerable number of straight tubules, even, are observed to be void of all epithelium, being only represented by their basement-membrane.

I have already alluded to certain albuminous cylinders obstructing the passage of the tubules in quite a number of places. They are yellow in color, presenting a glistening appearance similar to fat; and they are frequently observed broken into several fragments, and rarely exceed $\frac{2}{100}$ to $\frac{3}{100}$ mm. in length. In very thin horizontal sections of tubules, these cylinders appear to represent a very finely granular material similar to coagulated albumen.

In speaking of the condition of the heart revealed by the autopsy, I omitted to mention fibrinous clots and bands found in the cavities of the right side of this organ in a number of cases; and also larger and smaller masses of a yellowish or light-brownish and very soft jelly-like substance found in the left ventricle. Not knowing the exact nature of this substance, I put a portion of it in a weak solution of chromic acid in water, and after it had acquired some consistence made some thin sections for microscopical examination. The sections showed the beautiful, delicate fibrillous network of pure fibrine, interspersed with very numerous so-called exudation corpuscles or cells.

Judging from this observation, it might be expected that the delicate material met with in the interior of some uriniferous tubules in the form of short cylinders, having also been exposed to the action of chromic acid, should, like the soft fibrinous substance, show a fibrillous character if it represented pure fibrine. But, presenting on the contrary a finely granular appearance, with considerable luster, like fat, it seems to be rather of an albuminous nature, and is probably a product of the process of albuminuria accompanying yellow fever.

It has been stated by other observers that so-called fibrinous casts, as met with in the urine in Bright's disease, have also been detected in the urine of yellow-fever patients. During the epidemic of 1867, and in the succeeding years, I frequently examined specimens of urine obtained from private patients; but, though I often detected granular matter and also epithelial cells in this fluid, I do not remember to have met with fibrinous casts; and, though I believe in the possibility of this occurrence, I doubt its frequency. The fact of never having seen these casts myself must have been simply owing to the circumstance of having obtained only specimens of urine in which they were absent. In my examinations of the parenchyma of the kidney during former epidemics, which were confined to the organ in a fresh condition, I frequently observed uriniferous tubules, the epithelial cells of which presented a yellowish color, as well as others entirely void of epithelium, but in some places also of a yellowish color. This phenomenon I attempted to explain at that time by the presence of the coloring matter of bile. My recent investigations, however, have convinced me that there is no bile or its coloring matter present in the kidneys of yellow-fever patients, but that the yellow color observed in different portions of this gland is rather owing to the presence of free hæmoglobin escaped from the blood-vessels. The yellowish color of the albuminous casts or cylinders may have been acquired by the albumen before its escape from the blood.

The Supra-renal Bodies.—These organs, the function of which is not definitely known, are subject to severe pathological changes during the course of yellow fever. I have made sections in different directions of a number of specimens belonging to ten different cases, and have examined them with much interest. But, as a full description of these changes should be preceded by some appropriate remarks regarding the minute anatomy of the organs, I can not enlarge upon them in this place. For this reason my statement will be limited to a few remarks. In all these cases I found, in different localities of the organs, the cells of the cortical as well as of the medullary substance to contain larger and smaller fat-globules, a phenomenon which, as far as I am able to judge at present, depended on fatty infiltration; though, as in the case of the liver, true fatty degeneration may have formed a part of the process. Besides this, a greater number of parenchymatous cells were more or less colored brown, most probably by the absorption of free hæmoglobin escaped from the neighboring capillary vessels. Usually, the colored cells belonged to the medullary substance, though the coloration was not limited to this, but also extended, in the form of patches, even to the upper layer of the cortical substance. A vertical section of the fresh organ showed a brown zone—more or less dark in different cases—formed by the cells of the medullary substance, and frequently also by those of the inferior stratum of the cortical; at the same time extending, as already remarked, in the form of patches into the upper layers of the latter. In some cases a cavity had been formed by the splitting of the medullary substance, extending throughout the whole organ; in these instances, the inner surface, represented by the cells of the medullary substance, presented a dark-brown appearance. In one case, even, the separation had taken place between the medullary substance and the inferior layer of the cortical. The principal phenomena in all these cases, however, were coloration and fatty degeneration or infiltration of the greater part of the organ, not absolutely limited to any particular locality.

The minute blood-vessels of these organs were in some cases found filled with blood-corpuscles, while in others they were empty.

Ganglia of the Sympathetic Nervous System.—I have made and examined sections of some of these ganglia in five cases. The ganglia chosen for examination were those of the solar plexus, especially the semi-lunar, together with the first thoracic, or ganglion stellatum. While in the sections of some the minute blood-vessels were found congested, they were empty in others. As regards the ganglionic bodies, or cells, I discovered in two cases that their nuclei had disappeared, though the nucleoli were left behind. In fact, the whole ganglion cell here presented a peculiar indistinct appearance, characterized by a fatty luster. The disappearance of the nucleus, as far as I am able to judge at present, was probably due to a fatty degeneration, perhaps only of its wall. In another case I observed an abnormal accumulation of pigment in the ganglionic bodies; in the rest I was unable to detect anything specially abnormal. In those cases of fatty degeneration, the same condition was found in both the semi-lunar and the first thoracic ganglia. Further examinations, to be made hereafter on a greater number of sections, may perhaps reveal more.

The Brain.—The greatest number of microscopical examinations which I have hitherto made on this organ related to the condition of the pia mater. When a small piece of pia mater is carefully removed from the cortex cerebri and, after being properly prepared, placed under the microscope, both the small arteries and veins are found filled with blood-corpuscles; and this congestion extends even to the arterioles and venules, and also to the capillaries. Here and there some of the smaller vessels are found empty; but this circumstance may be owing to the escape of the blood-corpuscles through neighboring vessels, which, entering the substance of the brain, were torn with the removal of the pia mater. The walls of a number of arterioles, especially of those empty or containing only a smaller number of blood-corpuscles, present a very wrinkled appearance, which, as the short but deep wrinkles are confined to the adventitia, seems to have been caused by a contraction of the delicate muscular fibres encircling the small vessel. If this be the true cause, the contraction must have occurred before death, or during the act itself. . The most interesting phenomenon regarding these minute vessels, venules as well as arterioles, is the *fatty degeneration of the nuclei in their walls*, observed in almost all the cases thus far examined, a condition which I had predicted some time before. In many vessels, therefore, the nuclei have disappeared, leaving a number of fat-globules in their places. At the same time, however, others are met with in which an increase of the mere trace of protoplasm, surrounding the nucleus in the normal condition, has taken place, causing a thickening of the wall of the vessels, and giving rise, as I have described and pictured on a previous occasion, to minute aneurisms and to a final rupture of the vessel. The small hæmorrhagic effusions observed in the pia mater in the cases under discussion may have depended on this cause. The opacity of the arachnoid membrane, found in almost all the cases examined, is caused by the exudation of a finely granular matter into the subarachnoid space, filling up at the same time the fibrous meshes of the pia mater. The granules of this matter are quite distinct but pale; they measure about $\frac{1}{1200}$ mm. in diameter. Here and there, chiefly in the close vicinity of a vessel, or in contact with a hæmorrhagic effusion, smaller or larger brownish-looking granular masses of irregular forms are observed. The granules of these masses are identical with those of the exudate above described, though they appear more distinct; this exceptional character, however, I suppose to be caused by the presence of free hæmoglobin imparting the color to the mass. As far as I am able to judge at present, these masses are derived from the blood; they may represent portions of the liquor sanguinis impregnated with free hæmoglobin, rendered granular by the action of the bichromate of potassa. Smaller colorless masses, however, of the same material, situated between the vessels, are also observed throughout the pia mater. With the exception of one, all the specimens of pia mater thus far examined exhibited the changes above described.

The microscopical examinations of the substance of the brain which I have recently made extend to only a small number of cases. The most prominent observation thus far made is the existence of fatty degeneration of the blood-vessels of the cortex cerebri, similar to that observed in the vessels of the pia mater, together with degeneration of the ganglionic bodies of the cortex.

As regards the spinal marrow, it has already been mentioned that in a number of cases the vessels of the pia mater were found congested in the lumbar and cervical portion, particularly in the former. For the want of time no microscopical examinations have as yet been made.

The sketch which, in the preceding pages, I have drawn of the principal pathological changes occurring in various organs of the body during the course of yellow fever, short and imperfect as it is, will nevertheless serve as a guide in forming some idea of the nature of this disease; while, at the same time, it will furnish sufficient material for discussion. But, as my object in writing this article is only to render a short account of the results of my microscopical examinations, I can not here enlarge upon the true pathology of the disease, though I will point in a few words to its probable nature.

In reflecting upon the degenerative processes observed to take place in a number of important organs, and in the course of only a few days, it is obvious that the disturbance of nutrition preceding such changes must have been quite severe; and, on inquiring into the original cause of these changes, we are naturally directed at once to the mysterious yellow-fever poison. But here the difficulty commences; for, though it is evident that all these changes were caused by the noxious influence of some unknown poison, the exact manner in which they occurred still remains to be determined—in other words, whether the poison first affects the nervous centers, and subsequently through their medium the nutrition of the organs, or whether the poisonous effects are first experienced by the blood, and through its medium communicated to the other organs, including the nervous system. I am as yet not prepared to give a satisfactory explanation of this subject, but it is possible that the cause producing the different phenomena operates in two directions upon different organs, which on their part act reciprocally upon each other. Thus it may be that, on the one hand, the direct deleterious effect of the poison upon the blood affects the integrity of this fluid, and in consequence indirectly deranges the normal nutrition of the nervous centers, together with that of the secretory organs, and, inducing thus a derangement of function, finally leads to the febrile process; on the other hand, the poison, without primarily affecting the blood, may make its direct impression upon the nervous centers, and, by the irritation which it causes upon the nervous tissues, induce directly a derangement of function, experienced by all the organs of the body, and eventually giving rise to the fever. Judging from the premonitory symptoms of the disease, it would appear that the poison leaves its first impression upon the nervous system, which in its turn reacts more or less upon the other organs. But, in considering the known fact that the poison requires a certain time, the so-called "period of incubation," before being able to manifest its presence in the system, it appears more probable that its first impression is upon the blood. Not only this, but it seems also that the pathological changes, to which its presence in the blood gives rise, must have extended to a certain degree before they can manifest themselves by those phenomena known as the premonitory symptoms of the disease. For these reasons we may presume that the first impression of the poison is directly made upon the blood. And, judging from the observations I made on the liver and some other organs, stated in the preceding pages, and relating to the escape of free hæmoglobin through the walls of the minute blood-vessels and its absorption by the neighboring cells, it would almost seem that one of the first effects of the poison upon the blood consisted in a disturbance of the mutual relations existing between the hæmoglobin and the protoplasm of the colored blood-corpuscles.

It is true, no free hæmoglobin could be detected in the blood by microscopical examination in those cases of yellow fever, before mentioned, in which it was taken from the living patients. But this fact explains itself by the large quantity of free hæmoglobin which would be required in order to be detected in a layer of blood so exceedingly thin as that prepared for microscopical examination, and contained between the glass slip and the covering glass; in fact, such a quantity would be more than too large to be consistent with life. Free hæmoglobin, therefore, may be present in the circulating blood without being detected by the microscope. The faintly yellowish tint, appearing in a number of cases, and often as early as the third day of the disease, in the conjunctiva and the skin, corroborates this assertion. This yellowish tint, however, is not produced by the free hæmoglobin still contained in the circulating blood; on the contrary, its presence is not perceived until it has escaped from this fluid into the fluids of the surrounding tissues, to be absorbed by the cells forming the lowest stratum of the epidermis of the skin.

I have already remarked that, of all the organs affected in the course of this disease, the liver seems to be the first; and, often as I have reflected upon this phenomenon, I have not yet succeeded in explaining it satisfactorily to my mind. There is no doubt that the pathological changes observed after death in the different organs were preceded by a hyperæmic condition; though, as it happened in a number of cases during the last epidemic, only slight traces of this condition could still be detected by a *post-mortem* examination, especially with the liver, because the pathological process had entered another phase. The various hæmorrhagic effusions into the tissues and organs of membranes, caused by the rupture of minute blood-vessels, equally depend upon this state of congestion. As regards the liver, it would be important to know whether the hyperæmic condition preceding the process of fatty infiltration and degeneration was originally due to insufficient supply of nervous energy from the vaso-motor centers, or whether it depended upon a want of proper nutrition of the walls of the minute blood-vessels, owing to an abnormal condition of the blood itself. At any rate, whether depending upon the one or the other cause, the congestion forms the first stage of the pathological process, and its traces may be met with, either confined to the intra-lobular veins and their surrounding capillaries, presenting then the nutmeg-liver appearance, or in the inter-lobular vessels at the periphery of the lobule.

The first effects of the congestion consist in an increase of the secretion of bile, as is also indicated by the nausea and occasional vomiting of bilious matters, observed in a number of cases during the commencement of the disease. But these phenomena soon disappear; for, with the increase of the congestion and the beginning of fatty infiltration, or even degeneration, the secretion of bile gradually diminishes, and in fatal cases finally ceases. For this reason, the appearance of a bilious stool in the course of yellow fever, showing that the secretion of bile has not been entirely suspended, may always be regarded by the physician as a favorable symptom.

According to the above theory, the congestion of the liver may be owing to the same causes as the congestion occurring simultaneously in other organs. But, as the congestion of this organ is invariably associated with yellow fever, and mostly precedes that of other organs, we may presume that, besides the causes already mentioned, there are others upon which it may depend.

In observing for a number of years that most cases of miasmatic disease, even the simple intermittent fever, are accompanied by some derangement of the biliary functions, I have always been inclined to regard the liver as the organ through which the system makes the first attempt to eliminate the miasmatic poison, and to suppose the effort to be accompanied by an increase of the secretory function of the gland. The same process may occur in yellow fever. The respective nerve-centers, namely, being irritated by the presence of the poison in the blood, would send an abnormal amount of energy through the secretory nerves to this organ; this would be followed by an abnormal secretion of bile, causing an early exhaustion of the secretory powers of the gland.

Simultaneously with this abnormal stimulation, the liver receives another stimulus from the part of the blood relating to the coloring material of this fluid. At present, it is a known fact that the principal coloring material of the bile, the bilirubin, is derived from that of the blood, the hæmoglobin. Now, in the course of yellow fever, as I have shown before, it seems that an abnormal quantity of hæmoglobin is set free in the blood, which, in order to be eliminated from the system, must, while passing through the liver, be converted by the hepatic cells into bilirubin. But, as there exists a certain relation between the quantity of parenchyma of the gland and the amount of labor which this has to perform while the organism is in a normal condition, only a certain amount of hæmatin—the colored constituent of the hæmoglobin—can be converted into bilirubin, while the rest passes through the walls of the minute blood-vessels, to be deposited in the surrounding tissues, or to mingle with their fluids. Thus, we see that, besides the derangement of nutrition which the liver shares with other organs, its functions are also interfered with by other disturbing causes. The most prominent of these causes is, perhaps, the process of fatty infiltration into its parenchyma. This process, taking place to a considerable extent in yellow fever, is, as far as is known at present, caused by the existence of an abnormal amount of fatty matters in the blood, which, passing through the walls of the minute blood-vessels in the parenchyma of the liver, are absorbed by the hepatic cells.

Fatty infiltration of the liver is generally met with in chronic diseases, accompanied by a great exhaustion of the system, such as phthisis, chronic diarrhœa, dysentery, etc., in which the normal process of nutrition has been deranged, and in consequence of which a part of the albuminous matters of the blood, instead of being appropriated by the tissues of the organism for their maintenance, are converted into fat. Generally, in these diseases, the nutrition of the various organs and tissues becomes deranged only gradually by the original disorder, and, if fatty infiltration of the liver begins to take place, the process advances in most instances at the same slow rate as the latter. In yellow fever, the case presents a different feature. The deleterious influence of the poison, in reducing the integrity of the blood, is soon felt by all the organs and tissues, particularly by those of the nervous system, and naturally causes a serious disturbance in the material interchanges between the tissues and the blood, terminating in a complete derangement of the process of nutrition. Thus fatty infiltration may occur in the liver at a comparatively early period of the disease, and, if continuing, may seriously interfere with the functions of neighboring organs.

For, besides the diminution and final interruption of the biliary secretion which it causes, it also interferes with the portal circulation by means of the pressure which the abnormal amount of fat deposited by the blood and absorbed by the hepatic cells finally exerts upon the capillaries and interlobular vessels. And it is this pressure by which the congestion, representing the first stage of the pathological process, is gradually reduced, and confined to the center of the lobule. In cases of advanced fatty infiltration, therefore, the interlobular vessels are very rarely found congested after death. The disturbance in the portal circulation, however, will soon be felt by the tributaries of the portal vein; for, while the passage of the blood through the liver is rendered more difficult, a congestion of these veins will be the result, which, in extending backward to the minute venules of the mucous membrane of the stomach and intestines, will cause that peculiar congestion of these organs already described. In the stomach this congestion finally leads to that much-dreaded clinical symptom known as black vomit.

The vomiting of black matter in yellow fever has always been regarded as a most unfavorable symptom. The blood which this matter contains is derived from the hæmorrhage resulting from the rupture of some of those small venules extending in the form of a venous network between the epithelial and glandular layer of the mucous membrane of the stomach, and the congestion of these vessels, as I have shown, is owing to the interrupted circulation of the liver. It must be obvious that the direct result of such a hæmorrhage is to relieve these minute vessels from their congested condition, and that the small quantity of blood thus lost is in itself inadequate to lead directly to a fatal termination of the case. The occurrence of black vomit, therefore, only indicates a very diseased condition of the liver and of the whole organism in general, and from this circumstance alone the phenomenon derives its fatal import. From this fact it may be presumed that all astringent remedies, introduced into the stomach with the view of preventing the occurrence of black vomit, are not only useless, but injurious, by depressing the nervous system; and that from local applications alone, revulsive and counter-irritant in their nature, beneficial results can be expected, provided they are resorted to in the earlier stages of the disease. If, after the elimination of the poison from the system, indicated by the cessation of the febrile process, the pathological changes in the parenchyma of the liver have not advanced to a very great extent, that is, if the protoplasm of the hepatic cells itself has not undergone fatty degeneration, and if sufficient energy is left in the nervous organs to supply the wants of the organism, black vomit may occur without proving fatal. For, after the removal of the disturbing cause, the poison, the constitution of the blood will gradually return to its normal standard, the tissues will again be properly nourished, and, in consequence, the deposition of fatty matters into the parenchyma of the liver will cease, and finally the fat in the hepatic cells be reabsorbed.

It is in this manner that quite a number of patients recover from black vomit. In fact, in most cases where black vomit occurs the patient feels relieved after the ejection of these matters, and imagines that he will get well. In children the occurrence of black vomit is not followed by a fatal issue so often as in adults. This is owing to the interchanges of matter, especially in those organs pertaining to organic life, being more active in youth than in adult life; while, on the other hand, the organs of animal life, such as those of the nervous system, are in children more sensitive and impressible. It is for this reason that in the latter the affections of the brain, occurring in the course of yellow fever, are accompanied with more danger than those of the liver.

The same relations existing between the affections of the stomach and the liver are equally met with in the intestines, and the phenomena observed are nearly the same, though inferior in degree. In a number of cases, therefore, hæmorrhages similar to black vomit take place from the mucous membrane of the small intestines, and, mingling with the mucous matters of this organ, pass *per anum;* the black matter from the stomach, also, is in some cases voided in this direction.

Fatty degeneration of the liver, associated with congestion and capillary hæmorrhages of the stomach, are so constantly met with in every fatal case of yellow fever, that they may be regarded as a characteristic phenomenon of the disease. In cases where the black matter is not ejected from the stomach during life, it will in most instances be found in that organ after death.

Next to the liver and stomach, it is the kidneys which among other secreting organs are most frequently found diseased. As in the liver, the pathological changes taking place in these organs commence in a congestion, which is soon followed by albuminuria. This is very likely caused by the congested condition of the venules, and by the simultaneously increased activity of the heart accompanying the febrile process, and causing an increased pressure of the blood upon the walls of the minute vessels of the glomeruli. The walls of these minute vessels, being distended by the increased pressure of the blood, will allow the albumen to pass through. Thus albumen may be found in the urine during the first stage of the disease. The congestion itself originally depends on the same causes as that of the liver or of some other organ, and it is probable that at first it gives rise to an increased activity of the epithelial cells lining the interior of the uriniferous tubules. But, as it continues, and as the integrity of the blood is lowered, the nutrition of the protoplasm of these cells becomes deranged, a condition which, if persisting, leads to the degeneration already described. With the degeneration of the protoplasm, the granules which it contains are set free, and are either washed away by the watery portions of the urine coming from the glomeruli, or, if meeting with an obstacle, accumulate to form those masses which have been observed to obstruct the interior of the uriniferous tubules. If the nutrition of the epithelium is not resumed by a favorable turn of the disease, a fatty degeneration of the protoplasm and the granules will be the result. In the great majority of cases, however, the degenerative process does not extend throughout the whole parenchyma of the organ, and even in the diseased portions it is only a comparatively small number of tubules which are observed to be obstructed, either by collections of granules or by albuminous cylinders. These collections, as before mentioned, are not confined to particular localities, but are met with in the convoluted as well as in the straight collecting tubules. The lower down they are formed, the greater will be the ensuing disturbance.

This will be readily understood in reflecting upon the course of a uriniferous tubule. Commencing in the capsule by a short constriction, it soon enlarges in diameter, and in the form of several convolutions pursues its course toward the medullary substance. But, before arriving at the latter, its diameter decreases very considerably, and its course becomes straight. Penetrating next to a certain extent into the medullary substance, it suddenly bends upon itself in the form of a loop, to pursue its course in the opposite direction toward the surface of the organ. A little distance farther, while enlarging to its former diameter, its course again becomes convoluted, until, finally, its diameter having once more decreased, it makes another turn in order to join one of those fine collecting tubules which in a straight course run toward the center of the organ, and by the union of which the larger ducts opening at the surface of the papillæ are formed. From this it will be seen that a collection of granules, if occurring in the convoluted and looped portions of the tubules, will interrupt the function of only one tubule; while, if occurring in one of the finer or larger collecting tubules, it would interrupt the function of all convoluted tubules opening into this. Therefore, the lower down the obstruction the greater will be the damage resulting from it.

If these collections of granules are not too much impacted in the tubule, the inspissated mucoid matter which binds the granules together may be dissolved by the watery portion of the urine coming from above, and the route be reopened for the urinary secretion. That such a condition of things not unfrequently occurs may be inferred from a number of cases, in which the urine, after having been suppressed for a considerable time, suddenly reappears. If the patient lives long enough, the degenerative process passes into another phase, that of fatty degeneration. But, as far as my experience extends, this never takes place in yellow fever to such an extent as in Bright's disease. From all I know, I can not believe that in yellow fever death is often caused by a uræmic condition of the brain; and, if it does occur, it is only in a very limited number of cases. To corroborate this assertion I merely point to the fact that, even in Bright's disease, an affection in which the degenerative process in the kidneys attains a much higher degree and a greater extent than it ever does in yellow fever, and in which this process may extend throughout months and even years, a complete suppression of urine is only observed during the very last stage of the disease, and not in all cases. I am, therefore, inclined to think that, whenever a continued suppression of urine occurs in yellow fever, it is not entirely due to the destructive changes in the parenchyma of the kidneys, but to other causes besides. These may be found in the pathological condition of the brain, which in the great majority of cases causes the death of the patient. The excessive perspiration during the first stage of the disease, besides removing a portion of the urea from the blood, also causes a decrease in the amount of urine secreted by the kidneys.

My space does not permit me to enlarge upon the pathological processes occurring in the other organs, as the suprarenal capsules, heart, etc. I will only remark that, in these instances, they also, though perhaps not altogether, depend upon a derangement of nutrition as well as a diminution of nervous energy.

As regards the changes which I have thus far observed in the nervous organs, it would be difficult to discuss them in a few lines, or even pages. The nervous system, as I shall show on a future occasion, after I shall have examined and studied in a more perfect manner all the material collected, plays perhaps the most prominent part in the pathology of yellow fever. The correctness of this assertion may be inferred from the changes which I observed in the limited number of cases hitherto examined. There remains no doubt that, in the great majority of cases of yellow fever, death is caused by congestion and degeneration of the brain, in many instances accompanied by œdema; and it is to the preservation of the integrity of this organ that the physician should direct his efforts.

I am satisfied now that, with an accurate knowledge of the pathology of yellow fever, the progress of the pathological changes taking place in the various organs in the course of this disease may be diagnosticated by the clinical symptoms as correctly as the progress of the diseases of the heart and lungs by physical exploration. And such a knowledge alone, by putting an end to all empirical medication, will form the basis of a rational treatment, concurring with the present state of medical science. Yellow fever is a disease which, running like variola, scarlatina, or other kindred diseases, its regular course, either to recovery or death, will not bear much of what the profession calls "meddlesome practice"; and it is for this reason that the most simple treatment will ever prove the most successful. But it must be remembered that, while the treatment of this disease is simple, the attention which the patient requires is the greater, and must be constant; for certain conditions will arise during the course of this disease, when the withdrawal of the attention for only half an hour may lead to a fatal issue.

The statements and remarks made in the preceding pages will only serve to give a general idea of the true character of yellow fever. In my final treatise, which I hope to finish in the course of next spring, every point relating to the disease will be minutely discussed, while the microscopical pathology will be illustrated by appropriate drawings. Meanwhile, in the months of February or March, I shall be able to exhibit some complete sets of microscopical preparations, illustrating the pathology of yellow fever, to the medical profession of New York, Philadelphia, and other large cities of the Union.

Although I have already passed the limits of the space which I had marked out for this communication, I can not forbear, before closing, making some brief remarks upon the nature of the cause producing yellow fever. The discovery of the nature of the specific poison giving rise to yellow fever would undoubtedly be a greater achievement than the mere demonstration of its pathology, for the simple reason that it would facilitate the discovery of means for its prevention. And it is for this reason that this subject will always be of greater interest, and more readily attract the attention both of physicians and laymen, than the disease itself, though the latter lies nearer. As regards the particular character of the disease, the opinions of medical men have always been divided; for, while one party regarded the disease as merely "infectious," and in consequence intransmissible directly from person to person, the other looked upon it as "contagious," that is, communicable from individual to individual. Various reasons have in the course of time been given by either party for the support of each particular theory.

When the epidemic of 1867 made its appearance at New Orleans, the general opinion prevailing among medical men, as well as among the people, was in favor of the non-contagiousness of the disease, a view which, as far as I know, is still held by a large number of medical men; and, as this view appeared not unreasonable, I also adopted it as my own. I even regarded the disease as miasmatic in its origin, but in the most intense degree, and caused by a conjoint action of *gaseous* vegetable miasma with the effluvia derived from the decomposition of animal matter. To this view I was especially led by the fact that the disease mainly prevailed in cities where a large number of men and animals live closely together, but also by the seeming analogy of some characteristic features observed in pernicious as well as yellow fever. When, however, during this last epidemic I paid a closer attention to the manner in which the disease, starting from a few isolated centers, slowly spread over the whole city; when I observed it, furthermore, not to leave a family or house into which it had once entered until it had affected almost every inmate who had not been affected before; and when, lastly, I learned of its spreading along the public routes of travel, even to isolated places in the country—I could not but change my views, and, convinced of its contagious nature, I placed the disease in the same category with small-pox, measles, scarlet fever, etc. But, as I had always regarded these diseases as being communicated by means of a specific poison eliminated from the system through the lungs or skin in a vaporous or liquid form, and from individual to individual, I looked upon yellow fever in the same light. A closer study of the subject, together with the association of certain facts which I had observed, led me to the formation of the view I now hold. This is, that the poison is of an animal origin, or, in other words, a product of a secreting cell. In yellow fever, it is mainly eliminated by the glands of the skin in a liquid form, to be rapidly converted into a vapor, or also in the form of vapor by the epithelial cells of the air-vesicles of the lungs. It increases in quantity during its elimination by imparting its own properties to the secretion of the cell.

It has been noticed and stated by a number of physicians that a peculiar odor was associated with the profuse perspiration of yellow-fever patients, a fact which I observed myself in 1867 without a previous knowledge of it, and which I am now better able to understand by regarding the specific poison of yellow fever as a product of a modified or vitiated secretion. This odor, however, may, but only to a certain degree, depend upon the increased amount of urea eliminated through the skin during the course of the disease. Small-pox presents a similar odor, known to every physician who has treated many cases of the disease; and, as I know by experience, the odor is here sufficiently strong to diagnosticate the disease by the olfactory sense alone. The peculiar odor emanating from the skin of yellow-fever patients I observed again during the last epidemic, especially during my examinations of the blood from the living, when, in order to obtain the specimen of blood, I was obliged to come in close contact with the patients, and when I could not avoid inhaling the exhalations proceeding from the body. And it was during this time, in the middle of August, when the epidemic was fully developed, and after having been engaged for two days in these examinations, that I was attacked myself by the disease, notwithstanding I had with an almost equal exposure thus far escaped its effects. And, though I soon recovered, the attack was nevertheless characterized by all the prominent symptoms of the first stage, and for several days after I had resumed my daily duties I felt that peculiar dizzy and formicant sensation in my brain. A peculiar odor, similar to that emanating from the skin of living patients, is moreover observed for several hours after death, as long as the body is warm, and whenever the cavities are opened or the skin is removed from the muscles. In several instances I pointed out this peculiar odor to some of the hospital students, who chanced to assist me in making autopsies, and have convinced myself of its peculiarity by comparing it with the odor arising from the cavities and muscles of cases having died from other diseases, on which autopsies were made at the same time. The odor in these cases of yellow fever is most intense when for the purpose of removing the spinal marrow the muscles of the back are deeply cut into, and, furthermore, when the cavity of the cranium is opened. In one case, which I examined one and a half hour after death, and in which the body, in consequence of the adipose layer of the abdominal walls being very thick, was still very warm, the odor was so strong as to affect me again with that peculiar sensation in the brain.

All these observations point to the fact, or at least probability, that the yellow-fever poison is a secretion of glandular cells in liquid or gaseous form. This view, which I had thus gradually taken, became strengthened, and assumed a more definite shape, by the perusal of an address "On the Glandular Origin of Contagious Diseases," delivered by Dr. Benjamin W. Richardson, of London, to the members of the Sanitary Congress, at Leamington, England, on October 3, 1877,* and to which, some time after I had formed the above views, my attention had been directed by a friend. The subject of this address was the same which had been addressed by Dr. Richardson ten years previously, on a similar occasion, and the conclusions at which he arrived from his own observations and experiments appear to me so correct and decisive that they need no further comment; in fact, I am not able to elucidate this subject in so clear a manner as has been done in the principles laid down by this eminent English physiologist.

As my space does not permit me to make any remarks on the *bacteria theory*, I must defer this subject to some more convenient opportunity. There is, however, another subject left relating to the prevention of yellow fever, which I can not pass over without a few appropriate remarks.

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* This address will be found in the "Supplement of the Scientific American," Nos. 99, 100, 1877.

In accepting, then, the above view concerning the specific poison of yellow fever as a starting-point, it must be clear that it is improbable, *though possible*, that the poison should at present still be formed anew, but that, on the contrary, no matter how it at one time originated, it has been in active existence ever since it was known to the civilized world, and, furthermore, that it was always communicated either directly by inhalation or by swallowing from person to person, or transmitted indirectly by its adherence to clothes, merchandise, or other objects. Thus it traveled from person to person, from house to house, from community to community, and from country to country. And, if this view be true, the poison may be excluded from any place by a strict and properly regulated quarantine. But if, on the other hand, the poison consists of living beings, such as minute fungous spores or bacteria suspended in the air, and wafted about by the currents of the winds—excluding the possibility of their creeping along the ground from house to house, or from district to district—all quarantines, however perfect they may be, will prove futile; for a portion of every ship-load of these little creatures brought to our shores will escape as soon as the hold of the ship is opened, to disperse over the country and to multiply *ad libitum.* The slow spread of the yellow fever in our city and its rapid transport to a distance of some hundred miles also militate against this theory. As the principal object of a quarantine is to prevent the importation of infectious or, rather, contagious diseases into the port, it is obvious that the first condition required is the sure knowledge of some chemical agent which will effectually destroy the poison of the disease adhering to the clothes or other effects of the passengers, or to the merchandise contained in the ship—*without injuring these objects themselves.* Without such an agent, any quarantine will not only fail in its true purpose, but will become a serious burden to commerce.

The question now arises whether such an agent is known. As carbolic acid, as well as the fumes of sulphur, has as we know proved inefficient for keeping the yellow fever from our shores, experiments must be made for the purpose of discovering a better agent. Such experiments, however, should not be made at random, but should be based upon sound scientific principles. But as, for the want of yellow-fever cases, it is at present impossible to make direct experiments upon the poison of the disease itself, resort must be had to analogous poisons, that is, poisons which are likewise the products of secreting cells, or of certain exudative processes. Of the former, the poison of the rattlesnake would serve as a proper material for experimenting upon with animals; for any chemical agent, possessing the property of depriving this poison of its efficacy, without destroying the integrity of clothes and other merchandise, may prove equally efficient to destroy the specific poison of yellow fever, small-pox, and other kindred diseases. A better material still will be found in the lymph obtained from the pustule of the cow-pock, or even its dried scab, being suitable for experimenting with upon both men and animals.

Concerning the destructibility of these specific animal poisons, Dr. Benjamin W. Richardson says that "the poisons are all capable of being destroyed by various means. They are all destroyed by extreme dilution. They are all destroyed by heat and by oxidizing agents. The mere exposure of them to moist oxygen destroys them rapidly. The exposure of them to ozonized or electric oxygen destroys them even more rapidly than ordinary moist oxygen." Among the chemical agents, besides chlorine, iodine, and bromine, which are impracticable for our purpose, he also mentions the nitrous and sulphurous acids. Snake-poison, he says, is destroyed by sunlight, the destruction not depending upon the temperature, and accordingly bright sunlight is probably one of the means of destroying the organic poison. This last fact may be put to practical use during the prevalence of yellow fever.

It now remains for the experts in chemistry and physical science to solve the problem; the field is large, and the material lies near. The establishment of a proper system of quarantine police upon strict military principles, including the erection of well constructed and practically arranged buildings, requires no particular discussion, as it lies within the limits of human skill and power. If the problem can not be solved, any system of quarantine will prove a failure, unless it is converted into a blockade, which may prove equally as hostile and destructive to the interests of the people as the yellow fever itself. In such an emergency the nature and treatment of the disease would certainly receive the closest attention, resulting in a considerable reduction of the rate of mortality, such as was formerly the case regarding small-pox and its kindred diseases.

Art. II.—*Note on Salicylic Acid as a Prophylactic against Scarlatina, etc.* By P. C. Barker, M. D., Morristown, New Jersey.

Impressed with the correctness of the "germ theory" of contagious diseases, the writer years ago made various experiments with carbolic acid as a prophylactic against the common forms of epidemic diseases of childhood. Owing to the difficulty of administering the remedy in sufficient doses, the results were quite uncertain, and the probability of attaining this desirable end remained equally undetermined.

Upon the introduction of salicylic acid, and especially after the reported experiments of Berlagnini upon his own person, this remedy attained great importance, in my opinion, as the agent through which my old hope might be realized.

I have no notes of my early cases; but for nearly five years I have continued my observations as occasion gave opportunity, having in the mean time administered this remedy many times as a prophylactic against scarlatina, rubeola, and diphtheria.

I do not include the cases of diphtheria in this consideration, for it is my opinion (derived from an extensive acquaintance with this disease) that it should not be classed with small-pox, measles, scarlet fever, whooping-cough, and chicken-pox, but rather that it should be grouped with cerebro-spinal meningitis, typhoid fever, etc.

With the exception of two cases, which will be given below, I have never had a second case of scarlatina or measles in the same house, or among those known to have been exposed, since I began my experiments with this remedy.

Cases might easily be multiplied to illustrate the protective power of this remedy against the various contagious diseases of children. Two, however, will answer as well as twenty:

Case I.—W., the third child in a coachman's family of five children, was taken with scarlatina April 10, 1877. I first saw the child on the following day, when it presented all the peculiarities of the disease. The other children had all been in the room repeatedly, and indeed three of them slept in the room the night after the invasion, one of them occupying the bed of the ill child.

The living-room adjoined this sleeping-apartment, and during the whole course of the disease the communicating door was kept open; for this bedroom was warmed by the stove in the living-room. The other children spent their days in the latter room, sleeping in another part of the house. They all took the remedy every day until the sick boy had recovered, and the premises had been fumigated; and all escaped.

Case II.—S. L., a girl of twelve, sickened with scarlatina March 12, 1876. There were three other children in the family, a sister, three or four years older, and two small children. All were exposed (none having had the disease). The elder sister, having the care of the ill one, persisted in assiduous attentions, and in spite of my warnings occupied the same bed for several nights. All the children took the acid, and none of them contracted the disease.

The following cases, which I have spoken of as failures, are interesting in themselves, and, moreover, they serve to throw a side light upon the subject which, in my opinion, strengthens the claim I make for the remedy:

Case I.—W. G., aged eight, was taken with scarlatina December 14, 1877. Two playmates spent the afternoon with him after the invasion. To one of them I gave the salicylate of soda; to the other salicylic acid. The former had a mild attack of the disease; the latter escaped entirely. (It is now generally admitted that the salts of this acid do not arrest fermentation or putrefaction at all in the same degree that the acid does.) I feel quite certain that if this boy had taken the acid he too would have escaped.

Case II.—M. S., a little girl of six years, was taken with scarlet fever in June, 1876. An elder brother and a younger sister were around her for several hours after the invasion. Both were given salicylic acid. The brother, aged eight, was sent to his grandparents' house in another part of the town. On the morning of the eleventh day after the sister sickened, this boy was taken with vomiting and a sore throat. There were some redness and tumefaction of the throat, and marked febrile movement, which lasted about twelve hours, when it gradually subsided. The soreness of the throat also rapidly diminished, and in twenty-four hours more he had apparently recovered, nor were there any subsequent disturbances. Upon inquiry I ascertained that he had taken the remedy but three or four times altogether. The other child, who remained at home, took the remedy regularly and escaped.

It may be observed that I have written mainly of scarlatina. I have designedly done so, because of the well-known fact that scarlatina is more actively contagious than any other of the so-called children's diseases. I have used salicylic acid against most of the contagious diseases of childhood with apparent success; but success in the use of a remedy against the rest of these diseases has not the same significance that it possesses in connection with "the scourge of the nursery," for we sometimes see children escape, even after a short exposure to the lesser evils, where subsequent quarantine alone has been depended upon.

I would like to add a word concerning the value of this agent in diphtheria and typhoid fever, in preventing the self-poisoning which so many cases (of diphtheria especially) are apt to present.

It is my custom to give a strong preparation (a solution of ʒi in flʒii of alcohol, to which ʒvi of hot glycerine or water is added). This solution remains clear, and is used at half-hour intervals in severe cases by being dropped upon the dorsum of the tongue. By this means the fetor is abolished, and, moreover, I have repeatedly noticed an improvement in the appearance of the throat very soon after the commencement of its use. In typhoid fever I continue its use as long as the evening exacerbation lasts, giving from two to five grains every six hours. For this purpose I prefer capsules.

As a prophylactic against the exanthemata, I give adults and large children five-grain compressed pills or capsules once or twice daily, depending upon the period of incubation after known exposure. If seen soon after, the daily dose suffices. For infants and small children I give one to three grains dissolved and suspended in equal parts of hot glycerine and boiling water, repeating the dose twice daily for several days, and then giving one daily dose as long as circumstances necessitate, e. g., where a member of the same family is the invalid, it is continued until convalescence is established and the house has been fumigated.

Clinical Records from Private and Hospital Practice.

I.—*Inversion of the Uterus.** By H. P. C. Wilson, M. D., Baltimore, Maryland, Vice-President of the American Gynæcological Society, Surgeon in Charge of the Woman's Department of the Union Protestant Infirmary, etc.

I desire to place upon record the following case of inversion of the uterus as a tribute to the statistics of this important subject. This misplacement is rare, is often overlooked, when discovered is frequently neglected as beyond the power of the practitioner to rectify, and is sometimes included in the term "falling of the womb," which, under the ignorance of the past or inattention or thoughtlessness of the present, embraces all forms of malposition of the uterus.

Mrs. E. B. was nineteen years old in April, and married in December, 1875; was confined with her first child September 15, 1876, after five hours of natural labor. The child was living and healthy, but died three months after birth. She conceived again in February, 1877, two months after the death of her child; and was delivered of her second child November-ber 7, 1877, after seven hours of natural labor. She nursed this child two months after delivery, and then weaned him because of her great debility. She is of very fair complexion, lax muscular fibre, light hair, and blue eyes.

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* Read before the Baltimore Academy of Medicine December 3, 1878.

Her physician was one of the most eminent practitioners of the Eastern Shore of Maryland. He told me that he never attended a more natural or easier labor. A few minutes after the child was born, he placed one hand on the abdomen, and made very moderate pressure, on the uterus, while he tightened the cord gently with the other hand.

The after-birth came away with a sudden splash, and a mass (which he took to be a procidented uterus) protruded at the same moment about two inches from the vulva. He pushed it back at once. It reëntered the pelvis without any difficulty, and he saw, heard, and thought no more of it.

I saw Mrs. B. for the first time May 3, 1878. She was then perfectly anæmic, and so feeble that she was obliged to be on the bed almost constantly. Her countenance was dejected, and she was spiritless and hopeless. Since the birth of her child (six months ago) she has been losing blood from the uterus constantly, and at times profusely, with dragging sensations about the hips, back, and lower abdomen; yet no vaginal examination had been made to discover the condition of the uterus, and she was sent to Baltimore on a visit to friends with the expectation that change of scene, air, diet, and association would overcome these symptoms, and restore her to health and strength.

It was the day after she arrived that I first saw her; and a few minutes' conversation satisfied me that there was something radically wrong about the uterus, yet she stoutly resisted my making a vaginal examination, being convinced in her mind that there was nothing wrong in that quarter, and insisting she was only weak; and it was not until I was about leaving the room with the announcement, "I had rather give up the case than prescribe without knowing what was the matter," that she very reluctantly consented to a digital examination only.

The index-finger of the left hand on entering the vagina came in contact with a tumor, the lower end of which was just within the vulva, and the upper end apparently projecting from a dilated os uteri by a neck or pedicle. The tumor was about two and three fourths inches in its long diameter, and one and a half inch in its greatest transverse diameter. It was dense, and in every particular resembled a fibroid polypus coming from the cavity of the uterus. The pedicle was completely encircled by a dilated os, and in a moment after my finger was inserted into the vagina I was on the point of announcing the presence of a pediculated fibroid tumor of the cavity of the uterus.

In a large experience in diseases of women for twenty-eight years I had never before seen a case of inversion of the uterus (either acute or chronic), and so perfectly did the tumor before me simulate a fibroid that I was within an ace of being misled in my diagnosis, and of advising an operation for the removal of a fibroid. These mistakes have often been committed in similar cases, and the uterus removed by mistake; but they ought never to occur, when all the means of diagnosis are employed, and we are careful not to jump at conclusions.

The impression of a fibroid tumor had scarcely flashed across my mind, when it was replaced by the recollection that this lady was in perfect health up to the time of her last confinement, and had not had a well day since; so that her present condition must in some way be connected with that occasion. I began to feel by bi-palpation for the body of the uterus. It could nowhere be found, either *per rectum* or *per vaginam*, and I decided at once that the tumor before me must be the uterus. To make my diagnosis certain, I placed my patient in Sims's left lateral position, introduced the speculum, and attempted to pass the sound by the side of the apparent tumor, through the dilated os, into the cavity of the uterus; but all my efforts failed. These digital and probing examinations settled me in my opinion, and I at once announced to the patient that she had inversion of the uterus, and would require an operation for its restoration. I desired her to write at once to her physician of my diagnosis, and to ask that he would be present at the operation.

The time for the return of her menses was at hand. They were just coming on, and I advised a return to her home on the Eastern Shore, where, with her husband, child, and friends, she would have less of the terrors of an operation hanging over her than by remaining in Baltimore. This she did, and came back to me, with her physician, four or five days after menstruation had ceased.

I may remark here in passing that I saw in this case what I have never seen before, and shall probably never see again —the process of menstruation going on from the surface of the uterus turned inside out. It gave the impression of a sweating of blood from the surface of an engorged mucous membrane, just like the sweating of perspiration from the surface of the skin over an excited capillary circulation.

On the 17th of May, thirteen days after I first saw her, and five days after menstruation had ceased, after she had been examined by her physician and my diagnosis verified, she was given a liberal drink of whisky and then chloroformed to complete relaxation by Dr. Gardner. Lying on a table in the dorsal position, with thighs flexed on abdomen and legs flexed on thighs, one knee steadied by Dr. Bayley and the other by a nurse, having first pared closely my finger-nails, I proceeded to the reduction of the inversion.

One hand was passed completely into the vagina, and, the fundus uteri resting in its palm, the neck was encircled by the fingers, and steady upward pressure was made against that portion of the uterus which last emerged from the external os, while the other hand made steady counter-pressure above the pubis. The fingers were separated as far as possible from time to time to expand the encircling os, and allow the neck and body to return more easily. My plan was to return first the portion last inverted, until the fundus should disappear through the internal os.

At the end of half an hour of steady pressure, first with one hand and then with the other, I had succeeded in reduction to the point of bringing the lower end of the fundus within the external os, but all efforts to carry the body through the internal os were unavailing for some time longer. My fingers became so cramped, and my hands and arms so powerless, that I was obliged to desist from time to time, and replace my hands with those of Dr. Gardner, who rendered me most valuable assistance in every step of this operation.

When I had reached that point in reduction where the fundus had entered the external os, and all efforts to advance it through the internal os were unavailing, I changed my plan of attack. I indented the fundus uteri with the index-finger of one hand, and made counter-pressure with the index-finger of the other hand, pressing firmly down into the internal os from above the pubis; but all efforts in this direction failed.

I then attempted by indenting first one horn of the uterus and then the other, while the same counter-pressure was made as above, but with no more success. I then returned to my first manipulation, of grasping the fundus with my hand, and the cervix with my fingers, and making steady pressure upward against steady pressure downward from above the pubis, and at the end of one hour and ten minutes from the commencement of the operation we were rewarded with complete reduction of the inverted uterus.

My fingers, hands, and arms were almost powerless at the end of the operation, and I should have failed in the reduction at this first attempt, but for the aid given me by Dr. Gardner. The extent of this paralysis may be appreciated, when I state that I was unable to use my pen or perform any delicate manipulation for several days. I have never experienced such paralysis of the hand or arm in any previous operation within the pelvis.

The chloroform in this case was most skillfully administered. She took in all eight ounces, and was kept perfectly relaxed from beginning to end.

After the reduction the uterus was mopped out with Monsell's solution of sub-sulphate of iron and glycerine as an antiseptic. A pledget of cotton soaked in glycerine was placed in the vagina against the os, and the patient lifted into bed. She received no other treatment but plenty of milk and a liberal diet, was kept in bed for four or five days, and had her uterus mopped out every other day for ten days, first with the above solution of iron and glycerine, and then with Churchill's caustic iodine. At the end of this time she was allowed to return to her home with no other directions than to live liberally, drink plenty of milk, and wash out the vagina once daily with very hot water. She returned to see me in six weeks, looking well, healthy, happy, and full of life and gratitude.

Just before she left for home, I noticed that the uterus was inclined to fall backward, and in her relaxed, anæmic state, with all its natural supports exhausted, and stretched to their fullest capacity, I deemed it best to insert a small Hodge's pessary, rather than run the risk of complete retroversion. This was done with great comfort to the patient.

As stated in the commencement of this paper, this is the first case of inversion of the uterus I have ever seen; and, to give some idea of how rarely it occurs, it was "observed at the Rotunda Hospital but once in upward of 190,800 deliveries," in a period of over thirty years. It most commonly occurs immediately after labor by pulling on the cord while the placenta is still attached to the walls of the uterus; and when it thus occurs, if recognized at once, it is very easily reduced by pressing it immediately back through the relaxed and dilated os uteri. Every day, month, or year that it remains unreduced, its reduction becomes more difficult, and after great length of time often impossible.

Inversion of the uterus is sometimes produced immediately on expulsion of the child, where there has existed an unusually short funis, and this wrapped several times around the child's neck. The weight of the child under such circumstances may pull the fundus through the external os, by dragging on an insufficiently lengthy cord. It is as easily reduced as in the previous case, if discovered at once. Or inversion of the uterus may occur immediately after labor, where there has been no pulling on the cord, by the weight of an attached placenta dragging the uterus through the dilated os. It is as easily rectified in this as in the previous cases, if observed and undertaken at once.

Inversion of the uterus may also occur soon after labor, where the placenta has neither been pulled upon nor has its weight dragged the body of the uterus through the dilated os It may take place in an anæmic woman of lax muscular fiber, where there are irregular and partial contractions of the body of the uterus, by which the semi-paralyzed seat of placental attachment is forced through the dilated os by other portions of the uterus contracting around it. Inversion occurring from these causes is not susceptible of as easy reduction as in the previous cases mentioned; but, if promptly undertaken, and, if necessary, calling in the aid of chloroform, there is usually no great difficulty in replacing the uterus.

To this class of cases belongs the very remarkable one recently reported by my friend Dr. Byrne, of Brooklyn, in the "New York Medical Journal" for October, 1878, and which he styles "unavoidable or spontaneous" inversion. In this case the hand carried into the cavity of the uterus immediately after the delivery of the placenta (which was found in the vagina) encountered a partially inverted fundus. This inversion was readily reduced by upward pressure with the fingers, but invariably returned on withdrawal of the hand; and, as he states there was "no active hæmorrhage," in all probability the uterus was well contracted around this semi-paralyzed fundus (no doubt the recent seat of placental attachment), and thus the fundus was forced into "unavoidable inversion." Notwithstanding the skillful manipulation of this distinguished gynæcologist, he was unable to prevent this partial inversion from becoming a complete one. The entire body of the uterus passed through the cervix into the vagina, and all justifiable manipulation failed in its replacement till nine days after its occurrence.

This is an exception to the general rule that these cases are easily reduced if promptly discovered. I refer the reader to Dr. Byrne's paper for this interesting case of inversion as well as for the ingenious instrument invented to replace it.

Sometimes inversion of the uterus is produced by a fibroid tumor in its cavity dilating the cervical canal, and then by its weight, dragging the body of the uterus through the external os into the vagina. The tumor should be removed and the reduction undertaken at once.

To this class of cases belongs the interesting one reported by Dr. T. Gaillard Thomas, in the October number of the "American Journal of Obstetrics" for 1878, in which a fibroid tumor was the cause of complete inversion of both uterus and vagina. Tumor, uterus, and vagina appeared as one mass without the vulva. The woman had not been pregnant for thirteen years, and the condition in which he found her had existed for three or four years.

Another cause of inversion of the uterus is too great pressure through the abdominal walls on the fundus of a relaxed uterus. In this way the fundus may be indented, and very little irregular uterine contractions may be sufficient to carry on the work, till the fundus emerges through the external os.

In this, as in all other cases, inversion of the uterus is usually reduced with ease, if recognized early and undertaken at once. Those of months' and years' standing are the ones that give the practitioner so much trouble, and sometimes prove entirely beyond his control; and hence the importance of seeing, immediately after every labor, that the uterus is in proper place and condition.

Injudicious pulling on the funis by the *accoucheur* is the cause of more cases of inversion of the uterus than all other causes combined. It has been my habit in obstetrical practice, for many years, never to tighten the cord, unless an examination with the index-finger discovered the placenta in the vagina. Then there is no objection to pulling it away by the cord. But, if the placenta remains in the uterus after the cord has been tied and the child handed to the nurse, I immediately grease my hand and pass it into the uterus. If the placenta is detached, I turn it out with the hand, just as I would turn out a mass of clotted blood; if it is attached, I peel it off with the finger-nails, turn it out, and manipulate the uterine cavity till contractions expel my hand. I thus secure firm contraction of the uterus, seldom encounter *post-partum* hæmorrhage, and diminish the chances of septicæmia, by more effectually closing the mouths of all open vessels, and more thoroughly cleansing the cavity of the uterus. I also secure the patient against inversion of the uterus, and lessen many of the other dangers to which parturient women are liable.

I am aware that at least one of my most distinguished friends, Dr. Fordyce Barker (whose teachings I delight to treasure, and whose warnings should never go unheeded), cautions against the introduction of the hand into the cavity of the uterus after labor, and thinks it is fraught with the danger of lacerating the cervix; but I cannot see how the cervix uteri can escape laceration while the head and shoulders of a child are passing through it, and meet with it by the introduction of the hand immediately after delivery.

It must be a very large hand, and very rough manipulation, that could produce such a result immediately after the expulsion of the child; and, when laceration has followed such a manual exploration, I would think it due rather to the egress of the child than the ingress of the hand.

I consider this use of the hand free from all danger. We gain thereby perfect intelligence of the condition of the cavity of the uterus, and secure, as by no other means, firm and permanent contraction of the same. We are cognizant at once of threatened inversion, threatened hæmorrhage, threatened hour-glass contraction, adherent placenta, and any remaining *deciduæ*, and thus have the knowledge of any impending danger, as well as the remedy, at our fingers' ends.

II.—*A Case of Laceration of Urethra.* By Oscar J. Coskery, M. D., Professor of Surgery, College of Physicians and Surgeons, Baltimore, Md.

Joseph H., tailor, aged twenty, fell, on May 20, 1878, about fifteen feet, striking upon a leg of an upturned chair with such violence as to break the leg off short. Immediately felt a desire to micturate, walked a short distance to the privy and passed urine and blood (he thinks) through the penis. I saw him half an hour afterward. Found a ragged wound half an inch to the right of raphe of perinæum, leading upward for nearly four inches by the side of the rectum. At the extremity of the penis a blood-clot and blood oozing. Blood was coming also pretty freely from the wound. Passing a silver catheter (No. 10) down the penis, it came out through the wound in the perinæum, and through a ragged laceration in the urethra which could be felt with the finger. In spite of a careful hunt for the inner portion of the torn urethra, it could not be found. There was no shock, the pulse was 90 and regular, and temperature normal. Twelve drops of tinct. opii were ordered, and the patient was placed on his back with his knees elevated on a pillow.

7 P. M.—Pulse 95; temperature 100°. The patient has been sleeping and is comfortable, but has not passed water.

May 21st, 10 A. M.—Has passed a good night. Temperature normal; pulse 90. Has not made water since I saw him, but *did* pass in my presence about half a pint, one third coming through penis, the rest through wound. The edges of the wound were swollen, dark, and sloughy.

7 P. M.—Has urinated twice since morning, with considerable straining, passing about a pint and a half of blood and urine, mostly through wound; no clots. Is comfortable. Pulse 100; temperature 101°. Says he "feels hot."

22d.—Has been restless since midnight, with some fever; made water three times during the night, the last time (according to the nurse's account) nearly all passing through the penis. A superficial slough was found in the track of the wound, but no signs of extravasation of urine are present. No puffiness, no pain on pressure, and no heat about the edges. Some slight ecchymosis. Pulse 100; temperature 101°.

7 P. M.—Pulse 120; skin perspiring; temperature 102°. Patient made water in my presence, only a few drops passing through penis—about six ounces through wound. A purplish-red spot, about one inch in diameter, on either inner side of buttocks near wound (extravasation of urine ?).

23d, 10 A. M.—Patient doing very well. Has passed a good night, making water three times, most of it coming through penis. Pulse 90; temperature normal; edges of wound sloughing; purplish spots have disappeared; scrotum is slightly œdematous, but there is no pain anywhere.

25th, 10 A. M.—Since last note the patient has done well. This morning his pulse is 84; respiration 18; no heat of skin; appetite good; tongue is slightly coated; bowels regular. He passed urine three times last night, the last time nearly to extent of one pint—no blood. Sometimes, the nurse says, nearly all passes through penis, and sometimes nearly all through wound.

28th.—Wound cleaning, and now healthily granulating. Urine comes about equally from wound and penis. His appetite is good; skin, pulse, and respiration normal. The catheter has been passed daily as far as possible.

29th.—Succeeded to-day, for the first time, in getting into the bladder, but the patient complained so much of pain that the catheter was not tied in. The introduction of the instrument produced a slight bleeding from the wound.

June 1st.—The catheter is passed completely every day. There are three points of stoppage.

20th.—Since last note catheter has been passed daily, and external wound has now nearly closed, but pus still passes. All urine passes through penis.

July 4th.—No pus has passed for two days. Catheterization has been stopped for a week. Patient says he is as well as before the accident; passes urine freely. Discharged, with directions to return if he notices any decrease in size of stream.

December 14th.—Patient has been at work since last note, and has continued perfectly well, passing urine in full-sized stream, now six months after the accident.

Notes of Hospital Practice.

ROOSEVELT HOSPITAL.

Treatment of Diabetes by Salicylic Acid.—A case of diabetes mellitus entered hospital last summer, after being under treatment in other institutions. The house physician, Dr. E. Evetzky, proposed to try the effect of salicylic acid in the disease, after the manner described in the German journals. The patient was a boy twelve years of age, and on admission was passing daily two hundred and thirty ounces of urine containing thirteen ounces of sugar. Salicylic acid was administered in capsules, each containing ten grains. Ten of these were given in twenty-four hours. No change was made in the diet. Under the use of the agent the urine and sugar decreased one half. He was then placed on proper dietetic treatment, and the salicylic acid continued. The sugar then disappeared entirely. It was found after the acid had been continued for some time that considerable disorder of the stomach ensued. The treatment was then changed to the extract of nux vomica, four grains being given daily. The nux vomica kept the amount of sugar notably less than when the patient received no medical treatment, but was not so efficacious as the salicylic acid. This latter agent was repeated at different times, and with the same result. To obtain the effect of the remedy, Dr. Evetzky thought it was important to push it till the toxic effects manifested themselves, and then to decrease it till the patient tolerated it. The toxic symptoms referred to were extreme stupidity, headache, and drowsiness, with slight paralytic condition of the muscles, and appearance of albumen in the urine. One case, reported in a German journal, took two hundred and ninety grains daily. Dr. Evetzky's case took one hundred grains daily for nine months. It was found that, by reducing the amount to fifty grains daily, the effect on the urine was lost, but on increasing it to the usual amount the beneficial influence was obtained.

Abscess of Liver.—Two cases occurred in the service, which were of interest from their etiology and clinical history. The first case seemed to have had its origin in a pistol-shot wound; but the time elapsing between the injury and first hepatic symptoms rendered the etiology obscure. Two years before admission to hospital, a bullet entered the right side beneath the sixth rib. It was not extracted, and all troublesome symptoms passed away. Twelve days before admission pain was complained of near the site of the old wound. The liver extended about two inches below the margin of the ribs. There was neither chill, vomiting, jaundice, nor any history of diarrhœa or dysentery. The temperature was 104⅕°. Spleen enlarged. Urine contained five per cent. of albumen. Constipation was marked. The liver gradually increased in size, and after two weeks it extended downward for a distance of ten inches. One inch from the ensiform cartilage a tendency to point was detected. An incision was made, and ten ounces of healthy pus escaped. The wound was dressed and a drainage-tube introduced. Four or five ounces of pus exuded within an hour. The abscess was syringed daily. After the evacuation of the pus the temperature decreased, and subsequently convalescence became established, and the patient was discharged cured.

Another case of hepatic abscess was under treatment during 1877, and was of interest from the amount of pus discharged. A man entered hospital on June 5, 1877, stating that for eighteen months he had suffered from chronic dysentery. The margin of the liver extended two inches below the ribs.

August 1st.—The line of dullness five inches below the free margin of the ribs. Dysentery ceased.

7th.—Dullness extended to an inch above Poupart's ligament. Bowels constipated. No rigors.

17th.—Right hypochondriac and lumbar regions protruding, with apparent fluctuation. Thigh swollen. An hypodermic needle was introduced, and pus and blood withdrawn. A free incision was then made, and eighty-six ounces of pus withdrawn. Considerable decrease in the size of tumor took place, with decrease of pain and swelling in the thigh.

21st.—During an attempt to get out of bed thirty ounces of pus escaped from the wound. From this time the condition of the patient improved, and he was eventually discharged cured.

Report of Case of Aneurism treated by strapping.—The patient suffering from aneurism of the aorta, reported in the "Journal" for December, 1878, page 605, remains in hospital. She has had the aneurism continuously strapped; but latterly there has been a steady advance in size, with increasing thinness of the walls. She is not, however, confined to bed, but able to leave the hospital on pass.

MOUNT SINAI HOSPITAL.

Typhoid Fever; Constipation, with Ulceration of the Intestines.—There have been recently under treatment eighteen cases of typhoid fever, and in nine constipation has been a marked symptom, and one not easily overcome. In all of them the attack has been of a mild character, but with a tendency to relapses. In one case death took place from perforation, and on examination ulceration of the Peyerian tract, with perforation, was discovered. The mesenteric glands in the neighborhood were enlarged. There was intense hyperæmia of the ileum and ascending and transverse colon. The case was of interest in connection with a specimen presented by Dr. Beverley Robinson at the Pathological Society, January 8, 1879. In Dr. Robinson's case, as in the one above referred to, constipation was very decided. It would seem that the diarrhœa of typhoid can not always be attributed to ulceration or intestinal catarrh, for in the case occurring in the Mount Sinai Hospital the hyperæmia of the ilium and colon was intense.

Papilloma of the Anus.—A boy, aged seventeen, entered hospital suffering from a papilloma of the anus, which he considered to be the result of sodomy. The growth closely resembled the vegetations frequently found on the head of the penis in venereal disease. The disease encroached upon the external sphincter, but did not involve the rectum. Removal was twice attempted with the scissors and actual cautery, but in both cases it returned.

Hæmorrhoids.—A woman, aged forty-two, entered hospital suffering from internal hæmorrhoids. Ligation was performed, but before attempting it the actual cautery was passed around the base of the mass, to destroy the skin and relieve the pain which usually occurs subsequent to the operation, when the skin or mucous membrane is involved in the ligature.

CHARITY HOSPITAL.

Grindellia Robusta in Phthisis. — Grindellia robusta, the remedy which has been introduced in the treatment of spasmodic asthma, has been used with favorable results, but in a manner different to what might have been expected. It was supposed that, if the agent relieved the spasmodic condition in asthma, it might prove of service in the cough of phthisis, and for this purpose it was given to a large number of patients in the medical wards. It was also administered to a case of asthma. In the asthmatic patient no benefit was obtained, but in the phthisis cases considerable relief to the distressing cough was noticed in the majority of cases.

Remedies for the Relief of Cough in Phthisis.—During the past two years most of the medicines advised for the relief of cough have been used in phthisis. Atropia has been given in doses of from one hundredth of a grain upward. A great objection to its use was found in the dryness of the throat and other physiological effects. These occurred in many instances before any quieting of the bronchial irritation took place. Hydrocyanic acid and the cyanide of potassium failed to exercise any decided influence when given in moderate doses.

Morphia was valuable for its immediate effects, but unsatisfactory in causing nausea.

Hydrate of chloral in doses of ten grains proved of more value practically than any other. It did not cause nausea, and was remarkably uniform in its action. In some cases it caused sleep, but did not entirely check the cough, the patient sleeping and coughing at the same time. It is proposed to try the picrate of ammonia, and at a future time a report will be made.

Clinical Reports of the Demilt Dispensary.

DEPARTMENT FOR DISEASES OF THE SKIN.

SIX CASES OF FAVUS OF THE EPIDERMIS.

By Dr. L. Duncan Bulkley.

Favus is so commonly recognized and thought of as a disease of the hairy scalp that it may not be without interest and profit to call attention to six cases in which the disease affected other parts of the body, all of which have come under my notice during the past twelve or fifteen months.

Typical favus when perfectly developed is not very difficult to recognize by any one who has seen a single marked case or studied any good plates or models representing the disease; but, unfortunately, every case of this affection does not always present well-marked typical features any more than do other cutaneous diseases, which as a class are notorious for their atypic character and unreliable course. Very little, if anything, is said in most of the text-books in regard to favus attacking other parts of the body than the hairy scalp, so that the practitioner might be quite off his guard in reference to these cases, which are not so very uncommon. I will briefly detail those which have recently presented themselves to me, and make a few comments thereon.

Case I.—Magdalene Hahn, a well-developed and apparently healthy girl of fifteen years, came to my clinic at Demilt November 8, 1877, for the relief of a curious-looking crusted patch just beneath the left eye. At a distance of about a line from the edge of the lower lid there was seen an irregularly shaped, depressed mass, about a third of an inch long horizontally by a quarter of an inch wide, of a yellow color, and apparently quite firmly attached to the skin. It was surrounded by an inflammatory red border, and produced quite considerable disfigurement, and for the moment looked portentous. Taking it sideways between the thumb and finger it felt hard, and seemed to involve the entire structure of the skin. The center portion of the surface of it was below the level of the surface of the surrounding skin, but it suggested very little of the "cupping" always spoken of as characteristic of the single elements of favus, and certainly there was no hair passing through its center. The color was yellow, but not strikingly so.

The diagnosis of favus was made principally by exclusion, and verified by microscopic examination, which showed the mass to be wholly composed of the achorion Schönleinii. The disease had been noticed by the girl for only five days previous to her first visit, showing the rapidity of growth of the parasite; for certainly on so exposed a situation its presence could not remain long undetected.

The whole hard mass was lifted from its bed quite easily, without doing violence to the tissues, and a red, shiny surface was left, which bled a trifle at one side; when the mass was removed, the eyelid assumed a perfectly natural shape. She was given a little weak ammoniated mercury ointment to keep applied, and five days afterward hardly any trace of the trouble could be found. One week later she again presented herself, and now there was a very superficial eruption in the same location, in a small ring, resembling almost exactly the trichophytosis corporis, or ordinary ringworm of the body, as caused by the trichophyton tonsurans, the appearances of which will be described later.

Case II.—Just one year after this, November 1, 1878, Dr. Sherwell, of Brooklyn, kindly sent to my office Charles K., aged twenty, who presented an almost identical lesion in exactly the same locality, namely, under the left eye. Four days previous, when washing in the afternoon, he noticed a small yellow spot in that situation; he had not interfered with it in any way, and it had increased rapidly until the time of the visit, when it produced considerable deformity.

When examined carefully, there was seen to be an oblong crust just beneath the margin of the left lower lid, nearly half an inch long by one sixth wide, at the portion toward the external angle of the eye, and tapering almost to a point toward the nose. This was found to be moderately adherent, and did not yield to quite rough handling. When a portion of it was forcibly detached by the forceps, the surface beneath was smooth and shiny and of a bright-red color; the crust was found under the microscope to consist wholly of the parasite. A treatment similar to that adopted in the preceding case was advised. The patient was a stableman, and had dogs and cats about him.

Case III.—James W., aged nearly eleven years, came to Demilt March 14, 1878. On the right cheek, near the chin, was a group of irregularly formed yellowish cup-like crusts, with a margin or halo of red and scaly surface extending around them in an irregular circle of about an inch in diameter. The eruption was of brief duration, and was said to have been caught from another boy in his class in school with whom he played, and who was similarly affected: of this there is no other proof. The microscope established the diagnosis with certainty. He was given citrine ointment diluted three times.

Case IV.—Mattie D., aged five years, was brought to my class at Demilt December 7, 1878, mainly to be treated for an eruption upon the right knee, which was of only one week's duration. Here were seen four small yellow cups, depressed in the center, and of an exquisitely typical appearance; one of them was very minute, the others were about one line in diameter. They were grouped together, and there was some erythematous redness with moderate scaling between and around them.

On inquiry it was discovered that she had also an eruption behind the left ear for a longer but indefinite period, which, however, the mother seemed to slight. This was found to be situated just at the level of the upper portion of the external ear, a little above and behind it. It consisted of a worm-eaten-looking mass, of a light-yellow color in some portions, in others much darker, about half an inch long by one third of an inch wide, firmly adherent by means of some hairs which passed through it, and apparently reaching into the skin. There was not a single one of the characteristic cup-shaped crusts.

The masses from the knee were picked out with a curette, a weak mercurial ointment applied, and the spot was well in a few days. The patch behind the ear has given more trouble; it could not be thus easily turned out, on account of the hairs perforating it, and, after a portion of the friable mass was dug out, the diluted citrine ointment was applied.

Case V.—John F., aged nine months, was brought to Demilt December 27, 1878, with a red patch on the left buttock. It was nearly circular, and about an inch and a half in diameter; the margin was well defined, the center rather clearing up, and the outer portions especially had a small amount of scaling on their surface, which latter was certainly inflammatory in appearance. There was no other eruption on the child's body, and he was in apparently excellent health.

The eruption was diagnosticated to be an artificial one, probably a ringworm (*there were no cups at all present*, and no yellow collections suggesting favus), and scales were about to be removed for microscopic examination, when it was learned that the older sister, who accompanied him, had also an eruption on the skin. She was the subject of the next case.

Case VI.—Mary F., aged eleven years, was first seen December 27, 1878. She was in fair apparent health, though presenting the usual tenement-house strumous appearance.

On the left loin, just above the level of the sacrum, there was an oval patch of disease, occupying in all the area of a little over one square inch, upon which were situated a few very characteristic and sharply defined favus cups, none of them larger than a large split duck-shot, the rest of the area being occupied by a scaly erythematous eruption similar to that in the former cases. There was no other eruption elsewhere on the body or head, nor indeed was there in the other cases any eruption except that mentioned.

While there is very little new or unusual in these cases, there are certain points in connection with them which may be noted with advantage. First, as mentioned before, the existence of epidermic favus is not a well-established point in the minds of all physicians, and these six cases, occurring in rapid succession, demonstrate that it is not so very uncommon for the disease to affect parts other than the hairy scalp; in but one (Case IV.) of these six cases was the scalp at all affected. During the period in which these cases occurred, there were but two cases of ordinary favus of the scalp in a total of between six and seven hundred cases of miscellaneous skin diseases. This proportion of favus of the epidermis to that of the scalp is, of course, exceedingly unusual; the fact only is recorded. No connection was traced between any of the cases save the last two, nor were any of them traced to other cases of favus of the scalp. In reference to the two cases of favus of the scalp referred to, both of them had other members of the family affected.

In all of the cases it was found that the subjects had been in the habit of handling the lower animals, but in none was any direct contagion traced to them.

In one of the cases (Case V.) the lesion presented none of the features usually recognized and described as peculiar to the disease, namely, the yellow cups; the entire surface was simply erythematous, with a small amount of scaling. In another (Case I.), this form appeared after the first crusted mass had been removed and the disease partially destroyed; probably a partial neglect of treatment allowed the parasite to develop in this less pronounced form.

In two of the cases (Cases I. and II.) the yellow crusting, although depressed in the center, did not present any of the characteristic "cupping"; there was not a single circular mass depressed in the center; there were no hairs passing through it; but the entire growth, irregular in outline, assumed the depression, was firmly imbedded in the skin, and to the unpracticed eye looked like a dried pus-scab over an ulcerated surface; the yellow was rather that of pus than of favus.

The main points to be made in reference to the diagnosis of these cases are:

1. As to their bearing upon other cases, that is, in regard to the danger of spreading the contagion. When favus attacks the scalp in earnest, it is indeed generally a troublesome and may become a serious affection, by reason of the permanent loss of hair which may arise from its neglect, and also on account of its rebelliousness to treatment and the annoying character of the treatment which is usually necessary, namely epilation. These cases of epidermic favus, therefore, should always be promptly recognized and completely cured, in order that they may not be the means of further spreading a disease which may affect some quite disastrously.

2. The correct diagnosis is eminently desirable, inasmuch as the disease itself on the epidermis is so comparatively easy of cure when recognized, whereas, if the eruption is supposed to be something else, either too mild and inefficient remedies may be employed or too energetic measures may be unnecessarily resorted to. A physician who had seen one of these cases previously wrote that he "proposed treating it somewhat actively"; and, under the impression that it was a lupus

or some malign affection, one might easily employ destructive means which would cause much unnecessary pain, etc., besides leaving a scar, which if treated rightly would never be necessary.

3. Epidermic favus may be the means of calling attention to and recognizing the disease elsewhere, that is, in the scalp, where it may have long lain unrecognized. In Case IV., the lesion on the leg, which was of very recent occurrence—but one week—called attention to that back of the ear, of much longer duration, which might have spread and have been uncared for until considerable permanent baldness had resulted—as can be easily shown from other cases of favus of the scalp which have appeared at Demilt.

But little difficulty should arise in recognizing the eruption of epidermic favus, if the points already brought out in the above histories be well borne in mind. The very superficial erythematous and scaly form, when no cups are present, resembles almost exactly ordinary trichophytic ringworm : an exact diagnosis can be made by covering a spot with a watch-glass, fastened on with strips of adhesive plaster, and allowing the parasite to vegetate freely, when minute cupped crusts will pretty surely appear quite promptly. Such an erythemato-scaly spot could also be mistaken for a scaly eczema, but the microscope would decide the question absolutely; moreover, such scaly patches of eczema, perfectly well defined, and existing singly, are very rare. The same diagnostic differences apply between this lesion and psoriasis.

Such a manifestation of favus as that described in the first two cases, where there was a firmly imbedded crust beneath the eye (or elsewhere), would be apt to puzzle one who had not seen such a lesion in this disease, or had not heard it particularly described. But the comparatively rapid development in both these cases, five and four days respectively, together with the firm, solid character of the crust, and moreover its relatively easy removal and the character of the surface beneath, would leave little doubt of its real nature. Added to this, the very friable nature of the crust itself when crushed between the fingers would confirm the diagnosis, which the microscope, by showing it to be composed wholly of the spores and mycelium of the achorion Schönleinii, would render absolutely certain.

Little need be said in regard to the treatment of such cases. The parasite has a very feeble hold upon the skin which has no large and deeply reaching hairs: the crusts should always be "turned out," as was done in these cases, and any mild parasiticide will generally suffice. In private practice I use sulphurous acid most commonly for this class of affections; but among the poor its use is uncertain, as it quickly loses its strength when exposed to the air. Iodine, a weak wash of bichloride of mercury, oleate of mercury, or any of the mercurial ointments will generally suffice for its cure, and in a comparatively short period of time. Precautions should always be taken against conveying the disease to others.

Proceedings of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, December 2, 1878.

Dr. J. C. Shaw, President.

Cervical Pachymeningitis; Treatment of Trigeminal Neuralgia by Duquesnel's Aconitia.—Dr. V. P. Gibney read a paper on cervical pachymeningitis, consisting of histories of two cases which he had observed at the Hospital for the Ruptured and Crippled.

Case I. *Hypertrophic Cervical Meningitis.*—A boy, aged ten and a half years, entered the hospital August 22, 1878. During August, 1877, he was injured in the lower spinal region by falling against a pile of lumber. The immediate effect passed away in twenty-four hours, and he was seemingly in good health till January, 1878, when he had paroxysms of shooting pains in the back. These continued for a fortnight, then completely subsided, and he was comparatively well till June, 1878, when without known cause he complained of post-cervical pain, and bent his head forward in walking. This increased during July. There was also a slight cervico-dorsal prominence, scoliosis, but no angular deformity. On admission to hospital, a head support was applied to relieve an anterior drooping of the head. There was unusual care in walking and sitting, but no angular prominence at any point, and no signs of inflammation of any of the vertebræ. During September he did well, but in October the head drooped forward to an increased extent, so that in the lateral decubitus the chin rested on the sternum. The treatment consisted in vesication and the use of ergot and iodide of potassium.

November 1st.—Decided improvement.

4th.—Worse.

11th.—Complete paralysis of arms and lower extremities; partial paralysis of forearms and hands; anæsthesia of posterior surface of thighs.

17th.—Moved the right arm; classical *main en griffe* present.

21st.—Paralysis improved.

25th.—Epileptiform tremors of legs.

December 2d.—Sensation in thighs returned; general condition improved.

Dr. Gibney thought, from the fact that the symptoms presented by the case corresponded with those described by Charcot and Joffroy, it should be considered as one of hypertrophic cervical pachymeningitis.

Case II. *Hæmorrhagic Cervical Pachymeningitis.*—A girl, aged seventeen, was seized in September, 1874, with pain in the chest, anteriorly, which was transitory. There was also a numbness of arms, forearms, and lower extremities. After a few hours there was paralysis of the lower extremities, with acute pain. She entered the German hospital and remained there for thirteen months, during which time the paralysis improved. She was seen by Dr. Gibney August 20, 1877. There was then complete atrophy of the thenar and hypothenar eminences. The hand and wrist presented the classical *main en griffe.* He was of the opinion that the suddenness of the attack left no doubt of the meningeal lesion, but as to the cause of the hæmorrhage he was in doubt.

Dr. E. C. Seguin thought that the first case might possibly be one of meningo-myelitis, and that the second might be one of hæmorrhage into the gray matter of the cord.

Dr. Gibney excluded meningo-myelitis in the first case, because there was no rise of temperature, and that following the attack there were paralysis and apparent recovery. Subsequently, for three or four months, pain was present, which made it correspond with the painful stage of hypertrophic cervical pachymeningitis described by Charcot and Joffroy. The diagnosis of the second case was based on the sudden invasion, followed by tremors for three or four years, the contractions, and the position of the hands. He thought the hæmorrhage probably involved the cord itself.

Dr. Seguin said that *main en griffe* merely indicated paralysis of muscles supplied by certain nerves, without reference to the site of the lesion.

Treatment of Trigeminal Neuralgia.—Dr. E. C. Seguin read reports of cases of chronic trigeminal neuralgia treated by Duquesnel's aconitia in doses of gr. $\frac{1}{100}$. The reports will be found in the Proceedings of the Therapeutical Society of New York in this "Journal," December, 1878.

Dr. Gray referred to a case of trigeminal neuralgia reported by Niemeyer, in which the galvanic current proved successful, after medical and surgical treatment had failed. He had used it with success after the failure of other agents.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, December 26, 1878.

Dr. John C. Peters, President.

Deformed Nose; Operation.—Dr. Post presented photographs of a patient upon whom he had operated for a deformed nose, the result of the kick of a horse ten years previously. The first photograph showed the condition previous to operation. The nasal bones had been driven in on a level with the face, the point of the nose being everted to a degree which allowed the nares to present anteriorly. The operation consisted in making an incision across the nose about three quarters of an inch from the tip, and dividing the nasal septum sufficiently to allow the nostrils to assume their proper position. A flap was dissected from the forehead and carried down to fill the vacancy. Dr. Post said Dr. R. F. Weir performed a similar operation, but took the flap from the side of the cheek.

Lithotrity; Bigelow's Operation.—Dr. H. B. SANDS presented a stone which he had removed from the bladder of a man aged sixty-nine by Bigelow's method of rapid lithotrity. The patient suffered from Bright's disease and phthisis. Symptoms of stone appeared two years before he was seen by Dr. Sands. The operation lasted one hour and ten minutes. The fenestrated lithotrite was used. The stone was composed of uric acid, and measured an inch and a quarter in diameter. It weighed ninety grains; no bad symptoms followed the operation. After a month the patient walked two and a half miles without difficulty. Dr. Sands said that Bigelow's method was a great improvement on the former, and the apparatus contained so many improvements on Clover's that it was in fact a new departure. Dr. Post said that, without wishing to disparage Bigelow's method, he had successfully operated on patients by the old manner, and under unfavorable conditions. One patient came to his clinic from Yonkers and returned after each sitting. These were four in number. No untoward symptoms followed. The stone was of moderate size. In large stones he thought that Bigelow's instrument would undoubtedly be superior to any other.

Atlas in Two Segments.—Dr. BRIDDON presented an atlas in two segments which had been sent to him by Dr. I. C. Foster, of Clarksville, Texas. The division into lateral halves took place through the center of the anterior and posterior arches. A similar atlas was described by Dr. W. W. Keen, of Philadelphia, in the "American Journal of Medical Sciences," April, 1874. There was also an engraving of the specimen.

Microscopical Anatomy of Nephritis.—Dr. C. HEITZMAN exhibited to the Society microscopical specimens obtained from kidneys presenting evidences of acute nephritis. He said the subject had been studied in his laboratory by Dr. Alfred

Meyer, and the results published in the "Transactions of the Imperial Academy of Vienna," vol. lxxv., 1877. These results favored the view of dividing the disease into three varieties: *catarrhal*, *croupous*, and *suppurative.*

In acute catarrhal nephritis the epithelia of the tubules were much enlarged and coarsely granular, from the fact that their living matter was augmented. The effect of the enlarged epithelia was to decrease the lumen of the tube. The interstitial connective tissue was in a condition of œdema and commencing inflammatory infiltration. In the milder forms of the disease where resolution occurred, the epithelia desquamated, and at the same time the interstitial connective tissue, which had been in a state of œdema and commencing infiltration, was reduced to inflammatory or embryonal elements, and eventually new cicatricial connective tissue. The result of this process was shrinkage of the kidneys, giving rise to a uniformly granular appearance. The epithelia shared in the process by becoming reduced to a medullary condition. When the condition of acute nephritis was very severe, death took place suddenly with the symptoms of uræmia. The urinary evidences were albumen, with desquamated epithelia from the tubes, but no casts proper.

In acute croupous nephritis, casts were formed in the tubules according to the intensity of the inflammation. The tubules involved were the narrow, the convoluted of the second order, and the straight. Casts were evidently the products of an exudation from the blood-vessels together with changed epithelia of the tubules. Dr. Meyer was of the opinion that the irregular epithelia around the casts were newly formed after the destruction of the original ones. The interstitial connective tissue was infiltrated with inflammatory elements, the blood-vessels dilated, choked with blood or coagula identical with that of the tube-casts. If resolution occurred in croupous nephritis, the kidneys were not diminished in size, but on their surface cicatricial elevations occurred. The large fatty and waxy kidneys were to be considered as secondary changes of croupous nephritis.

Suppurative nephritis appeared either as disseminated foci of pus, or as large abscesses in the tissue of the kidney, the pus being formed both from the interstitial connective tissue and the epithelia of the tubules, which, after being reduced to the medullary condition, were broken down into pus-corpuscles. The cheesy masses found *post mortem* were old abscesses, and not tubercular formations.

Stated Meeting, January 8, 1879.

Dr. JOHN C. PETERS, President.

THE officers elected for the ensuing year are: President, Dr. Edward L. Keyes; Vice-President, Dr. Joseph W. Howe; Secretary, Dr. George F. Shrady; Treasurer, Dr. John H. Hinton.

Stricture of Rectum; Lumbo-colotomy.—Dr. JOSEPH W. HOWE presented to the Society a woman, fifty-one years of age, upon whom lumbo-colotomy had been performed at St. Francis's Hospital during February, 1875. Twelve years before admission she suffered from hæmorrhoids which bled and were very painful. There was also a profuse purulent discharge from the vagina. The hæmorrhoids were removed, but without any relief to the symptoms. A second operation was performed three years later, but without benefit. She did not know the nature of the second operation. When she was admitted to St. Francis's Hospital, the rectum was occupied with large ridges and bands of fibrous tissue and deep irregular ulcers. A bougie could be introduced into the rectum for the distance of two inches, but at that point a stricture existed which would not admit the tip of the finger. There was also atresia of the vagina, but no ulceration. During the previous year artificial means had to be used to move the bowels.

The treatment after admission to hospital consisted in the use of enemata and cathartics. The ulcers were touched with nitrate of silver, but without benefit. Attempts at dilatation were of no avail, and as the patient was growing rapidly weaker lumbo-colotomy was performed. An oblique incision was made, commencing at the lower border of the last rib and carried downward and forward for four inches, terminating half an inch behind the center of the crest of the ilium. The skin, subcutaneous fat, fascia, and muscles were divided, and the colon brought into view. It had not been previously injected with air or fluid. The gut was then secured by two sutures, which were attached to the integument. An incision was made in it for the extent of an inch and a half, and the sides of the wound secured to the integument by sutures. After the effects of the anæsthetic had passed away, a large amount of fæces passed through the opening, and was followed by a prolapse of the colon. This was reduced, and prevented from recurring by the introduction of a wax candle. No pain followed the operation, but on the fifth day erysipelas occurred in the wound, and an abscess developed. The patient was discharged cured in eleven weeks. She returned to hospital after a year, suffering from protrusion of the bowel. On examination, the colon was found prolapsed and ulcerated. The opening in the colon was enlarged from the pressure of the protruded gut. The intestine was reduced, and opium administered. A fortnight later the edges of the artificial anus were pared and brought together to the extent of an inch and a half. Only half an inch united permanently. She again left the hospital, and suffered from prolapse of the bowel till a year ago. No fæces have recently passed the rectum. When the patient was examined before the Society, she seemed in good general health, and was able to work.

Fracture of Ribs.—Dr. S. Caro presented a rib taken from an Italian mendicant who died of pneumonia. The fracture was old, and presented an osteophyte at the point of fracture. A point of interest was the fact that he was able to go about, although one of his lungs was completely carnified.

Typhoid Fever.—Dr. Beverley Robinson presented the intestines of a man who died at the Riverside Hospital. The patient was under the care of the resident physician, Dr. J. J. Delany, who furnished an accurate history. The interest of the case rested mainly on the occurrence of constipation with extensive intestinal ulceration. There were no lenticular spots on the abdomen, but in other respects the history indicated typhoid fever. Dr. Robinson suggested that the presence of constipation might be accounted for by the degeneration of the muscular coat of the intestines, and suggested a microscopical examination.

Dr. LOOMIS thought the question of diagnosis in the case rested between typhoid and typho-malarial fevers. In typho-malarial the ulceration might be found in the first, second, or third stages, whereas in typhoid the ulcerations were all in the same stage unless during the period of relapse. It would be necessary to examine the condition of the mesenteric glands, and under any circumstances the diagnosis was obscure unless the case was observed before the third week. Early in typhoid the temperature was uniform in its changes, whereas in typho-malarial the reverse was true. Dr. Robinson said that Liebermeister, in his article on "Typhoid Fever," held that the ulceration might be found either in the first, second, or third stage in the same patient.

Caries of the Teeth.—Dr. HEITZMANN presented microscopical specimens illustrative of the pathological histology of the teeth. The subject had been studied in his laboratory by professional dentists. Living matter had been found to exist in the enamel as well as in the dentine and cementum. Caries was an inflammatory process in which the elements were reduced to an elementary condition, no new elements being formed.

Necrosis of the Femur; Amputation.—Dr. E. L. KEYES presented the knee-joint of a boy who suffered from necrosis of the femur. The patient was eleven years of age and of a strumous diathesis. As a result of exposure he contracted periostitis of the lower portions of both tibiæ, which terminated in necrosis. Subsequently the right femur became involved. The most interesting feature of the case was the change in the femur produced by the contraction of the hamstrung muscles. The lower end was bent in such a manner that the articular surface, instead of looking directly downward, was inclined backward at an angle of 45°. The appearance of the limb resembled that following synovitis, and for its relief an instrument had been applied to bring the limb into a straight line. When the patient was seen by Dr. Keyes, dead bone was found in the lower part of the femur, and it was supposed that the deformity was the result of synovitis.

During forcible extension the involucrum broke. The tense hamstrung tendons were then divided, and the limb placed in immovable dressing. It was impossible to retain it properly, and the thigh was eventually amputated.

The pathological interest rested upon the change that had occurred in the end of the femur. An examination of the case would have led to the opinion that there was dislocation posteriorly of the tibia as usually found in synovitis, whereas there was no dislocation whatever of the joint, but a curvature of the femur resulting from the continuous action of the contracted hamstrung muscles.

Perforating Ulcer of the Duodenum.—Dr. A. L. Loomis presented a specimen of perforating ulcer of the duodenum. A man, aged sixty, died suddenly in a station of the elevated railroad. He was examined by the coroner, and a certificate given of death from heart disease. Four days afterward Dr. Loomis was asked to see if the man was really dead, and on making an autopsy a perforating ulcer of the duodenum was discovered.

The history indicated attacks of gout for the past twenty years, but the general health was good till about a year ago, when he complained of dyspepsia and pain in the epigastrium, with considerable loss of flesh. He was seen last May by Dr. Loomis, and at that time suffered from palpitation of the heart and hypertrophy. He went to Virginia, and improved very much, though there still remained pain in epigastrium, but without dyspepsia. On the morning of his death he walked from Fifth to Sixth Avenue, rode down to Chambers Street, and there died suddenly.

Autopsy.—The stomach was distended and the walls thickened at the pylorus, causing partial stenosis. The ulcer of the duodenum was an inch in area; it had sharp edges, and opened into the peritoneal cavity which contained the ingesta. Dr. Loomis said it was the first duodenal ulcer opening into the peritonæum which he had seen, and was of the same class as perforating ulcers of the stomach. In reply to the President, Dr. Loomis said there were no cicatrices in the stomach. The President said that ten cases of perforating ulcer of the duodenum had been presented to the Society.

Dr. Briddon had seen a case of death twenty-four hours after perforation.

Fracture of the Femur.—Dr. L. A. Stimson presented a specimen of fracture of the neck of the femur, in regard to which there was considerable discussion as to whether it should be considered extra- or intra-capsular. The patient was a man forty years of age. He was injured on September 12th, and was seen ten days subsequently. He complained of pain in the hip. The limb was not shortened. There was no eversion, and it was considered to be synovitis; motion in the joint was quite free.

November 16th.—The knee was swollen, and one week subsequently there was a shortening of an inch and a half with crepitation. Death occurred one month subsequently. Dr. Stimson said that it was extra-capsular fracture, and the absence of shortening was extremely unusual.

Dr. Howe examined the specimen, and held that the fracture extended in great part within the capsule, and as such it could not be considered an exception to the rule which was agreed to by all authorities. He thought enough of the capsule remained uninjured to hold the parts in position.

AMERICAN DERMATOLOGICAL ASSOCIATION.

(*Concluded from January,* 1879, *Number.*)

Owing to its length, the report of the Committee on Statistics, which was offered by the president, Dr. White, at the end of the second session of the first day of meeting, is now appended, as well as a list of the writings of the members of the association during the past year. The latter is a continuation of the bibliology of skin-diseases, collated by Dr. White, and published in the first volume of the Transactions of the association.

REPORT OF COMMITTEE ON STATISTICS.

Gentlemen: At the last annual meeting of the association a permanent committee was established to collect data to aid in the study of the prevalence and character of skin-diseases in the United States. The following gentlemen were appointed: Drs. Atkinson, Brodie, Bulkley, Hardaway, Hyde, Van Harlingen, White, and Yandell. The committee organized with the appointment of Dr. White, chairman, and Dr. Bulkley, secretary. The States and Territories of the Union were divided into subdistricts, and assigned to members of the committee for individual supervision, as follows: 1. New England, Dr. White; 2. New York, Dr. Bulkley; 3. New Jersey, Pennsylvania, Ohio, West Virginia, Indiana, and Michigan, Dr. Van Harlingen; 4. Delaware, Maryland, Virginia, North Carolina, and South Carolina, Dr. Atkinson; 5. Kentucky, Tennessee, Mississippi, Alabama, Georgia, and Florida, Dr. Yandell; 6. Region west of the Mississippi River, on and south of line of Missouri, Dr. Hardaway; 7. West of Mississippi River and north of this line, including Illinois and Wisconsin, Dr. Hyde.

Members of the association were requested to send reports of all cases observed in private and dispensary practice up to July 1st not yet tabulated and published, to the chairman of their respective districts. The committee voted to adopt as a basis of registration Hebra's system of classification until the committee on nomenclature should report some plan which might be adopted by the association as that to be hereafter officially recognized by its members. Blank forms were accordingly prepared and distributed by the committee in their respective districts to all gentlemen who make the treatment of skin-diseases a specialty, and to those in charge of dermatological clinics and dispensaries.

The returns received from the various districts are based almost entirely upon the observation of members of this association, and illustrate only the prevalence of skin-diseases in our largest cities. As the important objects of our investigations become better known, however, to the profession at large, there can be no doubt that future annual reports will cover wider areas, until our whole country is generally represented in them. Restricted as they are at present, the returns contain, nevertheless, very valuable information, based as they are upon the personal observation of competent dermatologists. The accompanying figures represent, it will be remembered, cases which have not previously been tabulated:

District 1. Boston cases	Dispensary	9,919	= Total, 11,921
	Private	2,002	
" 2. New York cases	Dispensary	1,431	= Total, 1,680
	Private	249	
" 3. Philadelphia cases	Dispensary	777	= Total, 777
	Private		
" 4. Baltimore cases	Dispensary	982	= Total, 1,090
	Private	108	
" 6. St. Louis cases	Private	168	= Total, 168
" 7. Chicago cases	Dispensary	719	= Total, 1,227
	Private	508	
Total private cases			3,035
Total dispensary cases			13,828
			16,863

From District 5, no return.

The accompanying tables show the number of individual diseases by districts and massed:

TABLE I.

Returns of 1878 *arranged by Districts.*

	Boston.	New York.	Philadelphia.	Baltimore.	St. Louis.	Chicago.
CLASS I. HYPERÆMIÆ.						
A. Active.						
Erythema traumaticum Erythema caloricum Erythema venenatum	104	3	..	9	..	28
Roseola infantilis	...	..	..	..	..	..
Roseola variolosa	...	..	..	..	..	..
Roseola vaccina	...	..	..	..	..	..
B. Passive.						
Livedo mechanica	...	..	..	..	..	..
Livedo calorica	...	..	..	..	..	..
CLASS II. ANÆMIÆ.						
CLASS III. DISORDERS OF THE GLANDS.						
1. *Of the Sweat Glands.*						
Hyperidrosis universalis	8	..	..	..	..	..
Hyperidrosis localis	9	14	2	2	1	8
Anidrosis	...	..	..	..	..	..
Bromidrosis	4	1	1	2	..	6
Dysidrosis	...	1	..	..	..	..
2. *Of the Sebaceous Glands.*						
Seborrhœa	222	15	25	23	13	34
Comedo	91	16	4	12	5	57
Milium	6	..	..	1	..	..
Molluscum contagiosum	12	..	..	1	..	1
Diminished secretion	13	..	..	..	..	..
CLASS IV. EXUDATIVE DISEASES.						
A. Acute.						
a. contagious. Exanthemata	36	11	..	10	..	28
b. non-contagious	...	..	..	..	..	..
1st group. Polymorphous erythemata.						
Erythema exudativum multiforme.	66	14	2	19	12	10
Erythema nodosum	13	1	1	1	..	11
Pellagra	...	..	..	..	..	..
Intertrigo	74	..	..	..	..	..
Urticaria	231	54	15	21	2	11
2d group. Dermatitides.						
Idiopathic	48	24	13	..	..	27
Dermatitis traumatica	12	12	..	4	..	5
" venenata	92	14	5	9	1	2
" calorica	6	5	..	4	..	8
Symptomatic.						
a. Dermatitis erythematosa	...	..	..	..	..	..
Erysipelas	63	29	6	10	1	21
b. Dermatitis phlegmonosa	72	..	..	2	..	..
Anthrax	5	5	..	5	..	7
Furuncle	205	52	5	34	3	27
Glanders	...	..	..	..	..	..
Pustula maligna	...	..	..	..	..	..
Dissection wound	...	..	..	..	..	..
3d group. Phlyctænous.						
Herpes	67	..	..	..	..	..
H. facialis	83	15	2	16	3	13
H. progenitalis	36	3	1	10	5	41
H. zoster	180	28	10	26	2	16
H. iris	5	..	..	..	..	1
Miliaria	...	..	2	1	15	..
Pemphigus acutus	1	..	..	..	..	3
B. Chronic.						
1st group. Squamous.						
Psoriasis	359	64	30	18	2	60
Lichen scrophulosorum	2	..	..	3	..	..
Lichen exudativus ruber	3	3	3	1	..	..
Pityriasis rubra	...	..	.	..	..	2
2d group. Pruriginous.						
Eczema	4,577	754	267	337	33	211
Scabies	103	11	17	13	..	4
Prurigo	1	1	..	..	..	..

TABLE I.—(*Continued.*)

	Boston.	New York.	Philadelphia.	Baltimore.	St. Louis.	Chicago.
3d group. Pimply.						
Acne disseminata	1,042	94	52	44	13	52
" sycosis	55	1	4	6	..	8
" rosacea	126	35	10	4	2	15
4th group. Pustular.						
Impetigo	280	6	11	6	..	26
I. contagiosa	2	..	20	14	..	..
I. herpetiformis	...	2	..	..	..	..
Ecthyma	54	4	7	2	1	17
5th group. Bullous.						
Pemphigus vulgaris	7	3	..	1	..	3
Pompholyx	1	1	..	..	..	..
CLASS V. HÆMORRHAGES.						
1. *Traumatic.*						
2. *Symptomatic.*	1	..	..	..	..	..
Purpura rheumatica	9	..	..	..	2	1
Purpura simplex	27	14	5	1	..	6
Purpura papulosa	1	..	1	3	..	..
Purpura hæmorrhagica	3	..	..	1	..	3
Variola hæmorrhagica	...	..	..	..	..	..
CLASS VI. HYPERTROPHIES.						
1. *Of Pigment.*						
Lentigines	4	..	..	2	2	..
Nævus pigmentosus	...	..	..	..	..	..
Chloasma traumaticum	1	1	..	1	..	.
" toxicum	...	..	..	..	..	..
" caloricum	...	..	..	..	..	..
" uterinum	51	2	1	5	1	12
" cachecticorum	4	..	..	2	..	1
Melasma	3	.	..	..	..	..
2. *Keratoses.*						
K. pigmentosa	7	..	..	..	..	.
Tyloma	4	1	..	1	..	.
Clavus	6	..	..	1	..	..
Cornu cutaneum	...	..	1	2	..	3
Verruca	42	7	8	17	5	37
Ichthyosis	15	5	9	4	..	3
Hypertrophy of Hair	26	3	..	1	5	..
Hypertrophy of Nails	1	..	..	..	1	..
3. *Of Connective Tissue.*						
Scleroderma	1	..	..	..	..	1
Sclerema neonatorum	...	..	..	..	..	..
Morphœa	...	1	..	..	..	..
Elephantiasis Arabum	...	..	1	..	..	..
a. cruris	4	..	..	..	..	..
b. genitalium	1	..	..	..	..	..
c. teleangiektodes	3	..	..	..	..	..
Frambœsia	12	..	..	..	..	..
CLASS VII. ATROPHIES.						
1. *Of Pigment.*						
Leucoderma	...	1	..	2	..	..
Albinismus	...	..	..	3	..	..
Vitiligo	...	8	2	1	1	..
Canities congenita	...	..	..	..	..	1
" senilis	...	1	..	..	..	..
" præmatura	6	..	..	..	..	2
2. *Of Hair.*						
Alopecia adnata	...	..	..	..	..	..
" acquisita	82	8	..	4	..	5
" senilis	...	..	..	..	..	..
" areata	73	2	6	1	3	11
" furfuracea	179	..	..	..	1	..
" syphilitica	5	..	..	9	..	52
Atrophia pilorum propria	2	..	..	..	..	..
3. *Of Nails.*	6	..	..	..	..	..
4 *Of Cutis.*						
Atrophia senilis	...	..	..	..	..	..
Striæ atrophicæ	7	1	..	..	..	..
Atrophia unilat.	...	..	.	1	..	.

TABLE I.—(*Concluded.*)

	Boston.	New York.	Philadelphia.	Baltimore.	St. Louis.	Chicago.
CLASS VIII. NEW GROWTHS (benign).						
1. *Of Connective Tissue.*						
Keloid	7	1	2	12	..	2
Cicatrix	9	..	..	3	..	2
Molluscum fibrosum	5	..	2	..	1	1
Xanthoma	7	..	..	..	..	..
2. *Angiomata.*						
Teleangiektasis	31	1	5	2	..	..
Nævus vascularis	14	5	..	8	4	6
Angio-elephantiasis	1	..	..	..	..	..
Tumor cavernosus	...	..	..	..	..	..
Lymphangioma tuberosum multiplex	...	..	..	..	..	..
3. *Of Cellular Tissue.*						
Rhino-scleroma	...	..	..	..	..	..
Lupus erythematosus	23	6	..	..	1	13
Lupus vulgaris	21	3	1	8	2	7
Syphiloderma	827	..	98	148	..	81
Scrofuloderma	17	10	10	..	..	..
CLASS IX. NEW GROWTHS (malignant).						
Lepra, tuberosa, maculosa, anæsthetica	...	..	..	2	..	1
Carcinoma	...	..	..	..	..	..
Epithelioma	41	22	12	8	..	5
Carcinoma lenticulare	..	..	..	..	..	..
" tuberosum	2	..	..	..	..	..
" melanodes	...	..	..	..	..	..
Melano-sarcoma	2	1	..	..	..	..
CLASS X. ULCERS	283	34	[illegible]	27	4	35
CLASS XI. NEUROSES.						
Pruritus	236	23	24	35	7	27
Hyperæsthesia	5	..	..	1	..	7
Anæsthesia	...	..	..	..	..	..
Cutis anserina	...	..	..	.	..	..
CLASS XII. PARASITIC AFFECTIONS.						
1. *Vegetable Parasites.*						
Favus	25	4	..	..	..	3
Herpes tonsurans	448	61	22	41	8	18
Pityriasis versicolor	112	14	19	11	4	17
2. *Animal Parasites.*						
Pediculosis capillitii	608	62	5	13	1	14
Pediculosis corporis	194	71	13	14	..	30
Pediculosis pubis	17	1	1	5	..	35

TABLE II.

Combined Returns.

	Private Cases.	Dispensary Cases.	Total No. of Cases.
CLASS I. HYPERÆMIÆ.			
A. Active.			
Erythema traumaticum Erythema caloricum Erythema venenatum	40	104	144
Roseola infantilis	...	...	...
Roseola variolosa	...	...	...
Roseola vaccina	...	...	
B. Passive.			...
Livedo mechanica	...	...	...
Livedo calorica	...	...	...
CLASS II. ANÆMIÆ.			

TABLE II.—(*Continued.*)

	Private Cases.	Dispensary Cases.	Total No. of Cases.
CLASS III. DISORDERS OF THE GLANDS.			
1. *Of the Sweat Glands.*			
Hyperidrosis universalis	7	1	8
Hyperidrosis localis	12	24	36
Anidrosis	...	...	...
Bromidrosis	9	5	14
Chromidrosis	...	...	...
Dysidrosis	1	...	1
2. *Of the Sebaceous Glands.*			
Seborrhœa	145	187	332
Comedo	71	114	185
Milium	4	3	7
Molluscum contagiosum	3	11	14
Diminished secretion	9	4	13
CLASS IV. EXUDATIVE DISEASES.			
A. Acute.			
a. contagious. Exanthemata	35	50	85
b. non-contagious	...	..	...
1st group. Polymorphous erythemata.			
Erythema exudativum multiforme	31	92	123
Erythema nodosum	9	18	27
Pellagra	...	...	...
Urticaria	58	276	334
Intertrigo	...	74	74
2d group. Dermatitides.			
Idiopathic	3	109	112
Dermatitis traumatica	5	28	33
" venenata	20	103	123
" calorica	3	20	23
Symptomatic	...	...	...
a. Dermatitis erythematosa	...	...	...
Erysipelas	23	107	130
b. Dermatitis phlegmonosa	4	70	74
Anthrax	9	13	22
Furuncle	47	279	326
Glanders	. .	...	...
Pustula maligna	...	...	...
Dissection wound	...	...	...
3d group. Phlyctænous.			
Herpes	...	67	67
H. facialis	21	111	132
H. progenitalis	37	59	96
H. zoster	26	236	262
H. iris	4	2	6
Miliaria	...	18	18
Pemphigus acutus	2	2	4
B. Chronic.			
1st group. Squamous.			
Psoriasis	129	404	533
Lichen scrophulosorum	5	...	5
Lichen exudativus ruber	4	6	10
Pityriasis rubra	...	2	2
2d group. Pruriginous.			
Eczema	687	5,492	6,179
Scabies	3	145	148
Prurigo	1	1	2
3d group. Pimply.			
Acne disseminata	229	1,068	1,297
" sycosis	16	58	74
" rosacea	81	111	192
4th group. Pustular.			
Impetigo	15	314	329
I. herpetiformis	2	...	2
I. contagiosa	7	29	36
Ecthyma	8	77	85
5th group. Bullous.			
Pemphigus vulgaris	1	13	14
Pompholyx	1	1	2

TABLE II.—(*Continued.*)

	Private Cases.	Dispensary Cases.	Total No. of Cases.
CLASS V. HÆMORRHAGES.			
1. *Traumatic.*			
2. *Symptomatic*	1	...	1
Purpura rheumatica	3	9	12
Purpura simplex	7	46	53
Purpura papulosa	1	4	5
Purpura hæmorrhagica	1	6	7
Variola hæmorrhagica	...	...	...
CLASS VI. HYPERTROPHIES.			
1. *Of Pigment.*			
Lentigines	8	...	8
Nævus pigmentosus	1	...	1
Chloasma traumaticum	1	2	3
" toxicum	...	...	...
" caloricum	...	...	...
" uterinum	36	36	72
" cachecticorum	2	5	7
Melasma	3	...	3
2. *Keratoses.*			
K. pigmentosa	7	...	7
Tyloma	1	5	6
Clavus	4	3	7
Cornu cutaneum	2	4	6
Verruca	53	63	116
Ichthyosis	12	24	36
Hirsuties	31	4	35
Hypertrophy of Nails	1	1	2
3. *Of Connective Tissue.*			
Scleroderma	2	..	2
Sclerema neonatorum	...	...	...
Morphœa	...	...	1
Elephantiasis Arabum	...	...	...
a. cruris	3	2	5
b. genitalium	1	...	1
c. teleangiektodes	2	...	2
Frambœsia	12	...	12
CLASS VII. ATROPHIES.			
Of Pigment.			
Leucoderma	1	2	3
Albinismus	1	2	3
Vitiligo	8	4	12
Canities congenita	...	1	1
" senilis	...	1	1
" præmatura	7	1	8
2. *Of Hair.*			
Alopecia adnata	...	...	...
" acquisita	74	25	99
" senilis	...	...	...
" areata	43	53	96
" furfuracea	167	13	180
" syphilitica	24	42	66
Atrophia pilorum propria	2	...	2
3. *Of Nails*	1	5	6
4. *Of Cutis.*			
Atrophia unilat. idiop.	...	1	1
Striæ atrophicæ	8	...	8
CLASS VIII. NEW GROWTHS (benign).			
1. *Of Connective Tissue.*			
Keloid	5	19	24
Cicatrix	3	11	14
Molluscum fibrosum	3	6	[illegible]
Xanthoma	2	5	7
2. *Angiomata.*			
Teleangiektasis	26	13	39
Nævus vascularis	18	19	37
Angio-elephantiasis	1	...	1
Tumor cavernosus	...	...	...
Lymphangioma tuberosum multiplex	...	...	...

TABLE II.—(*Concluded.*)

	Private Cases.	Dispensary Cases.	Total No. of Cases.
3. *Of Cellular Tissue.*			
Rhino-scleroma.	...	...	..
Lupus erythematosus	27	16	43
Lupus vulgaris	13	29	42
Syphiloderma	120	1,034	1,154
Scrofuloderma	1	36	37
CLASS IX. NEW GROWTHS (malignant).			
Lepra, tuberosa, maculosa, anæsthetica	2	1	3
Carcinoma	...	...	...
Epithelioma	46	42	88
Carcinoma lenticulare	...	...	...
" tuberosum	2	...	2
" melanodes	...	...	...
Sarcoma	2	1	3
CLASS X. ULCERS	65	321	386
CLASS XI. NEUROSES.			
Pruritus	77	275	352
Hyperæsthesia	10	3	13
Anæsthesia	...	...	...
Cutis anserina	...	...	...
CLASS XII. PARASITIC AFFECTIONS.			
1. *Vegetable Parasites.*			
Favus	...	32	32
Herpes tonsurans	95	503	598
Pityriasis versicolor	30	147	177
2. *Animal Parasites.*			
Pediculosis capillitii	7	696	703
Pediculosis corporis	4	318	322
Pediculosis pubis	13	46	59

These returns represent, therefore, the occurrence of nearly 17,000 consecutive cases of skin-disease in special private and dispensary practice. If to these be added similar lists previously published by the same gentlemen, we shall have some 30,000 carefully recorded cases. Although indicating in their present form only the comparative prevalence of individual diseases, it is none the less apparent what important material they afford for the eventual analysis and study of the committee, nor can it be doubted that, when its working organization shall become more complete our returns will gain largely in value each year.

LEPROSY IN AMERICA.

SPECIAL efforts have been made by the committee on statistics to gather information concerning the present state of leprosy, as it exists in certain foci, within and immediately beyond the borders of the United States, a subject referred to in the President's address, at the last meeting of the association. These centers of prevalence were stated to be: the Norwegian colony in Minnesota, the blacks and Jews in South Carolina and other Gulf States, and the French residents of northeastern New Brunswick. The occurrence of sporadic cases in several of our Northern States was mentioned as established on reliable authority also. These circumstances, together with the fact of the probable penetration of a race greatly prone to the disease in large numbers among our people in all parts of the country, in view of the possible transmissibility of the disease in other ways than by heredity, make the study of the progress of the affection in America of special importance at the present time.

New Brunswick.—From the replies of resident physicians to the leprosy committee of the Royal College of Physicians, England, published in 1867, it appears that the disease then prevailed in the French settlements Neguac, Tracadie, and Carraguet, bordering upon the Mirimichi River, a distance of twenty miles, near the bay of Chaleurs, in the gulf of St. Lawrence, and representing a population of four thousand. They state that it was introduced in 1815, that it was first noticed in a woman named Benoit, daughter of a Marie Bredeau, who came from St. Malo, in Normandy, when young, and of whose antecedents nothing is known. (Another account, recently made public in connection with the appearance of one of these lepers in Providence, Rhode Island, states that the disease was introduced from the Levant in 1758.) All accounts agree, however, that it has continued mainly in her descendants, the only exceptions to its confinement to French families being a Scotchman living seventy miles from Tracadie, some of whose descendants have since been affected. Isolated cases have been known to occur in districts lying outside those first named.

No active measures were taken to control the disease until 1844, when a hospital was established by the provincial government on Shelldrake Island, and continued until 1849, when the present lazaretto at Tracadie was built, three or four acres being inclosed by a wall twenty feet high, to prevent the escape of patients. In 1868 this was placed, and has since remained, under the charge of the nuns of Hôtel Dieu, of Montreal. During the first five years, 1844 to 1849, there were admitted 32 patients, of whom 14 died, 3 escaped, and 15 were transferred to the new lazaretto at Tracadie. From 1849 to 1863 there were received 67 additional patients, of whom 58 died. In 1848 there were in confinement 22 cases, in 1850, 31, in 1866, 22. The greatest number present at any one time was 37.

From the report published in 1867 it appears that both the anæsthetic and tubercular forms of disease prevail. That it occurred among the poorer classes of farmers and fishermen, most of whom live in great poverty. All the resident physicians, whose opinions are quoted, believe that it is hereditary; one only, Dr. Gordon, that it is contagious. He stated that individuals of different races, living in the same house with lepers, had become infected. In a report made to the House of Assembly thirty years ago, testimony was presented in confirmation of the statement contained in Dr. Smith's letter, which follows, that the disease at the start was communicated by inoculation. It has proved uniformly fatal.

To gain some definite information of the progress of the disease during the twenty years that have elapsed since the publication of any authentic report on the subject, I have corresponded with Dr. A. C. Smith, who lives at Newcastle, near Tracadie, and who studied medicine at Harvard.

Dr. Smith was for three years visiting physician of the lazaretto prior to 1868, and subsequently resided in Massachusetts. He informs me that medical attendance was discontinued from that date, and that since that time it has been wholly in charge of the nuns above named. I have here a letter from the sister superior, who kindly furnishes the accompanying data: "There are at present 16 patients at the lazaretto, 6 men and 10 women. Since we have been in charge, that is since October, 1868, 47 patients have died." In this connection, quite an interesting account of the affection, and institution, from Father Gauvreau, its chaplain, now deceased, may be found in the *Catholic World*, May, 1877.

It will be seen that there has been no professional observation of the disease for twenty years, and that therefore we have no reliable means of determining if any change of type in the affection has taken place. A most valuable field of study in the interests of humanity and science has thus been lost. I am happy, therefore, to announce, through the Secretary of the Department of Agriculture, that the government at Ottawa has recently taken action in the matter, and has appointed Dr. Tachè to inspect the lazaretto, and to make an inquiry into "the history, cause, and propagation of leprosy." Let us hope that, when this report shall have been made, the Dominion Government will place the institution under proper professional control.

The accompanying letter, from Dr. Smith, containing answers to certain questions relating to the disease, will be found of interest and value. It would appear at least that the disease, if it have not abated in severity of type, has at least not increased in prevalence:

There are only three known cases of leprosy outside the lazaretto. There are no police measures to compel residence. Lepers are shunned by relatives, and are glad to go to the lazaretto. Once in they never try to escape, although the doors are open day and night. With the exception of the cases mentioned below, I am of opinion that the disease has appeared wholly in the descendants of the Benoit woman, and is confined to the French residents. The disease is confined to the most miserable class in Tracadie. I have never known it to appear among the better class in the district. The better class of French in Tracadie are not behind those in other parts of our province.

Affected persons can settle in other parts of the province, but seldom, if ever, do so. They intermarry very freely. I believe that the thousands of French in Tracadie are related one to the other through intermarrying. The disease is *now* confined to the immediate vicinity of Tracadie, within a range of—not twenty miles, as *formerly*, but about seven miles.

Apparently well-authenticated cases of contagion *do* exist. The third case that appeared in Tracadie was that of Francis Sonier. Sonier helped to carry a Benoit woman's coffin in summer time. Matter oozed out of the bottom of the coffin, and soaked through Sonier's coat-sleeve to his body. Within a year afterward he was attacked by the disease. You will have noticed the name of Stewart, a Scotchman, in the "Report" of the Royal College of Physicians, London. Stewart had been in Tracadie in the company of two persons on whose persons the disease was beginning to make its appearance. Two nephews of Stewart, by the name of

Tingley, lived with Stewart, and afterward died, lepers, in the lazaretto. A man by the name of McCombe, who lived one or two winters in Tracadie, lumbering, died of leprosy. A. C. SMITH.

Leprosy in the Southern States.—Dr. Atkinson presents the following statement:

Reports of leprosy in the Southern Atlantic States are so limited in number that it becomes at once apparent that the disease can, at the present time, hardly be included in the nosography of this region. A notice of sixteen cases, reported from notes furnished him by Dr. W. H. Geddings, of Charleston, S. C., by Dr. James C. White, of Boston, at the meeting of the International Medical Congress, at Philadelphia, 1876, in a paper entitled "Variations in Type and in Prevalence of Diseases of the Skin in Different Countries of Equal Civilization," shows that since 1846 leprosy has been observed in Charleston upon the persons of four Jews, eight white Christians, three mulattos, and one full negro. Two of these cases were a mother and daughter, who became simultaneously affected. Two others also belonged to the same family. With these exceptions, hereditary taint appeared to have had no influence in producing the disease. Dr. White does not state the birthplaces of these people, or whether any of them had resided in countries where leprosy prevails.

Dr. Joseph Jones, of New Orleans, in the *New Orleans Medical and Surgical Journal*, March, 1878, refers to a case of leprosy observed by him in the State of Georgia. This patient was a native African, who had probably contracted the disease in Africa.

Dr. George H. Rohé reported three cases of leprosy in the *Maryland Medical Journal*, July, 1878. Two of these were American born whites. One, a woman, born in Baltimore, forty-six years of age, had never been beyond the limits of the United States; the other, a man fifty-four years of age, born in New York, had lived in Cuba nine years, but had been in Baltimore during the last fourteen years, the disease first appearing twelve years after his departure from Cuba. The third case came under the notice of Prof. Tiffany, of Baltimore, who supplied the notes to Dr. Rohé. The patient was a young man, born in Barbadoes, of English parents, twenty years of age, and in whom the symptoms of leprosy began at the age of five years.

Of these twenty cases, two at least were born in the United States, and one had never been beyond their borders. It is not at all unlikely that some of the cases observed by Dr. Geddings were also natives of this country, and it is most probable that there have been other cases not reported. It is, nevertheless, a fact that leprosy is never observed by a very large majority of the medical profession in this region, and is practically a disease to which our people are not liable.

Leprosy in Minnesota.—Dr. Hyde presents the following summary of facts gathered from papers and from various letters written him by Dr. Christopher Gronvold, of Norway, Goodhue County, Minnesota, relative to the existence in that place of certain patients affected with leprosy:

1. Prof. Boeck, of Christiania, reported in all eighteen cases of the disease among his countrymen in the west.
2. One of these eighteen patients, affected with the anæsthetic variety of the disease, is living in the vicinity of the town of Norway.
3. Another of these eighteen patients died of tubercular leprosy in 1878, under the observation of Dr. Gronvold.
4. "Four or five" leprous patients observed by Dr. Gronvold have

removed from his vicinity. He described their cases fully in writing, and forwarded his manuscript to Dr. Ole Bull, of Norway, in Europe, but the report was never published.

Dr. Gronvold forwards notes of three cases, never before reported. One of these patients died of anæsthetic leprosy in 1878. The other two are still living—one affected with the tubercular, and the other with the anæsthetic variety of the disease—in or about Norway, Minnesota.

6. Dr. Gronvold's conclusions regarding the disease, as it exists among his countrymen in the west, are in substantial accord with those previously expressed by Prof. Boeck. The cases reported show: *(a)* an equal representation of the two forms of the disease; *(b)* its steady progress in those patients who exhibited the first symptoms of the malady in the Old World; *(c)* a tendency in the tubercular to assume the anæsthetic phases—seldom, if ever, the reverse; *(d)* no instance in which the disease has been transmitted to children born in America.

Dr. Gronvold believes that, in his patients, the disease would have advanced more rapidly in the Old World. So far as regards the benefit supposed to be derivable from emigration to this country, he believes, with Prof. Boeck, that few patients have been benefited by the change. In a very few, the disease seems to have remained without increasing in severity; in the larger number, the disease has been in no way retarded.

Leprosy in California.—We have no definite information concerning the prevalence of the disease on the Pacific coast, but from the report of the Health-Officer of San Francisco for the year ending June 30, 1875, it appears that the number of cases of leprosy in the Chinese Hospital at that time was thirteen.

Leprosy at the Sandwich Islands.—The following statement of details concerning the present state of leprosy at the Hawaiian Islands may not be out of place in this connection. The last report of their Board of Health says:

"The settlement on Molokai, which was established in 1866 for the segregation of the unfortunate victims of this incurable disease, still remains a necessity of the nation. The Board has endeavored for the past two years to carry out the laws regarding the lepers with fidelity, and, however hard it may appear in individual cases, there exist sufficient reasons to persevere in the measures which have been hitherto pursued." The following statistics show what has been done at the asylum:

Number of lepers admitted since its foundation in 1865 to March 31, 1878:	
Males	1,159
Females	668
	1,827
Number of admissions in biennial period ending April 1, 1876	295
Deaths for same period	299
Number of admissions in biennial period ending April 1, 1878	257
Deaths for same period	263
Number at present in asylum	692

The board reports a decrease in the spread of the disease in the past two years; also that it cannot obtain a competent physician to reside at the leper settlement.

James C. White, *Chairman.*

A List of the Publications and Writings of Members between July, 1877, and July, 1878, made up from Replies to a Circular Letter of the President.

ATKINSON: A Case of Unilateral Idiopathic Cutaneous Atrophy, *Richmond and Louisville Medical Journal*, December, 1877.

BULKLEY: Seven Cases of Palmar Syphilis, Demilt Dispensary Report in "New York Medical Journal," October, 1877. On the So-called Eczema Marginatum of Hebra, *Chicago Medical Journal and Examiner*, November, 1877. Two Cases of very late Hereditary Syphilis, *Archives of Dermatology*, April, 1878. Note on a Hitherto Undescribed Point in the Diagnosis of Psoriasis, *Archives of Dermatology*, April, 1878. A Case of Unrecognized Fatal Hæmorrhagic Small-Pox, *New York Medical Record*, April, 1878. On the Use of the Solid Rubber Bandage in Eczema and Ulcers of Leg, *Archives of Dermatology*, July, 1878. Case of Recurring Exfoliative Dermatitis, *Archives of Dermatology*, July, 1878. Clinical Conference on Diseases of Skin, *Archives of Dermatology*, January, July, 1878. Notes on Local Treatment of Certain Diseases of Skin, *Archives of Dermatology*, January and July, 1878. Review and Book Notices in *Archives of Dermatology*, April and July, 1878, not otherwise accredited.

CAMPBELL: Report on Diseases of Skin at Demilt Dispensary (Cases), "New York Medical Journal," December, 1877. Case of Prurigo of Hebra (read at last annual meeting), *Archives of Dermatology*, April, 1878. Digest of Diseases of the Glands, *Archives of Dermatology*, April, 1878. Fagge's Catalogue (revised) and other Book Notices, *Archives of Dermatology*, July, 1878.

DUHRING: Atlas of Skin Diseases, III. and IV. Atrophy of Hair of the Beard, *American Journal of Medical Sciences*, July, 1878 (read at meeting of 1877). Clinical Lectures: Bulbous Eruption from Potassic Iodide, *Philadelphia Medical and Surgical Reporter*, August, 1867. Lichen Planus, *Philadelphia Medical Times*, April 27, 1878. Acute Eczema Vesic. of Trunk and Arms. Epitheliomatous Tumor of Temporal Region, Herpes Zoster Dorsopectoralis, *Philadelphia Medical and Surgical Reporter*, May, 1878.

FOX: So-called Pigment Syphilide, *American Journal of Medical Sciences*, April, 1876. Molluscum Contagiosum (Clinical Study, read at 1877 meeting), *Chicago Medical Journal and Examiner*, May, 1878. On Hydroa and other Bullous Eruptions, *Archives of Dermatology*, July, 1878.

HEITZMANN: On the Relation of Impetigo Herpetiformis to Pemphigus (read at 1877 meeting), *Archives of Dermatology*, January, 1878.

HYDE: Congenital Multiple Monolateral Pigmentary Nævus, *Chicago Medical Journal and Examiner*, October, 1877. Report of Proceedings of American Dermatological Association, *Chicago Medical Journal and Examiner*, October, 1877. On the Question of the Innocuity of Certain Physiological Secretions in Syphilis, *Chicago Medical Journal and Examiner*, February, 1878. Vesicular Eruption Induced by Ingestion of Cannabis Indica, *New York Medical Record*, May 11, 1878. On the Immunity of Certain Mothers of Hereditarily Syphilitic Children (read at meeting, 1877), *Archives of Dermatology*, April, 1878. Lectures: On the Non-Venereal Cutaneous Affections of the Genital Organs, *Boston Medical and Surgical Journal*, June 27, 1878. Digests of Literature: Infantile and Congenital Syphilis, *Archives of Dermatology*, April, 1877, July, 1878. Dermatology and Syphilis, *Chicago Medical Journal and Examiner*. Reviews: On the Treatment of Eczema, by R. W. Taylor, November, 1877. On the Tonic Treatment of Syphilis, by E. L. Keyes, *Chicago Medical Journal and Examiner*, November, 1877. A Treatise on Gonorrhoea and Syphilis, by Durkee, *Chicago Medical Journal and Examiner*, February,

1878. Transactions of the American Journal Association, *Chicago Medical Journal and Examiner.*

Correspondence: Origin of the term Syphilis. *Louisville Medical News*, December, 1877.

HARDAWAY: The Lymphatic Theory of Syphilitic Infection (read at 1877 meeting), "New York Medical Journal," December, 1877.

PIFFARD: Venereal and Cutaneous Memoranda.

SHERWELL: Substitute for Cod-Liver Oil in Skin Diseases, *New York Medical Record*, January 27, 1878. Lichen Ruber (Case), *Archives of Dermatology*, July, 1878.

TAYLOR: Clinical Study of Sciatica caused by Syphilis, read before the New York Neurological Society, September, 1877 (unpublished). On the Xeroderma of Hebra, read at the meeting of 1877 (yet unpublished).

VAN HARLINGEN: Impetigo Contagiosa, *Philadelphia Medical and Surgical Reporter*, September 8, 1877. Pathology of Seborrhœa, read at 1877 meeting, *Archives of Dermatology*, April, 1878.

WIGGLESWORTH: Auto-inoculation of Vegetable Parasites of the Skin, *Archives of Dermatology*, 1878. Faulty Innervation as a Factor in Skin Diseases, *Hospital Gazette*, March, 1878. Recent Progress in Syphilis, *Boston Medical and Surgical Journal*, February 28, 1878. Digest, New Formations, etc., *Archives of Dermatology*, April, 1878.

WHITE: Dermatology in America; An Address at the First Annual Meeting, *Archives of Dermatology*, January, 1878. Case of Lichen Ruber, *Hospital Gazette* and *Archives of Clinical Surgery*, November 1877. Lecture on Tinea Tricophytina, *Boston Medical and Surgical Journal*, February 14, 1878. Lecture on Melanoderma, *Boston Medical and Surgical Journal*, May 16, 1878. Digests, Acute Exudative Diseases, *Archives of Dermatology*, December, 1877, and June, 1878. Reports on Dermatology, *Boston Medical and Surgical Journal*, December, 1877, June, 1878. Critical notices in *Boston Medical and Surgical Journal* and *American Journal of Medical Sciences.*

Bibliographical and Literary Notes.

ART. I. — *The Pathological Anatomy of the Ear.* By HERMANN SCHWARTZE, M. D., Professor in the University of Halle a. S. With the Author's Revisions and Additions, and with the Original Illustrations. Translated by J. ORNE GREEN, A. M., M. D., Aural Surgeon, Boston City Hospital; Clinical Instructor in Otology in Harvard University. Boston: Houghton, Osgood & Co. Cambridge: The Riverside Press, 1878. Pp. 174.

THIS volume, as here presented, constitutes the sixth part of Kleb's "Handbook of Pathological Anatomy."

"It is the only comprehensive work devoted exclusively to the pathological anatomy of this organ; and on account of the opportunities and devotion of the author in his special field, his well-known thoroughness and strict impartiality in scientific researches, it is a most valuable addition to the literature of otology."

This quotation from the translator's preface shows the aim of the book.

Joseph Toynbee (1866) is credited with having been the first who, in a systematic manner, determined the principal pathological changes, and established the fact that the majority of these changes were situated in the tympanum, or middle ear. All that had been done before is but little compared with the mass of his material.

It is pleasant to see a German author start off with such a tribute to an English authority. But the scepter soon passed into German hands, for we find that the further development of the pathological anatomy of the ear has been due to the labors of German otologists. A number of these workers are named, but none of them is more deserving of note than the illustrious author himself.

After enumerating the diseases which most frequently affect the ear, minute directions for dissecting the ear, i. e., *the removal of the temporal bone with the whole ear from the skull, dissection of the ear*, with especially minute directions for the examination of the inner ear, are given.

The next section is on the temporal bone malformations, and pathology. The remarks on caries and necrosis of this bone, with the most common fatal results from these processes, are exceedingly instructive. Several plates illustrate the way in which the process has extended to the brain. This part of the book is worthy of careful study by every physician, whether he has specially to do with ear diseases or not.

A short space only is devoted to fractures of the base of the skull going through the temporal bone.

The possibility that such fractures may heal, seldom by osseous consolidation, but more frequently by fibrous union, has been confirmed by trustworthy dissections. *New growths, cholesteatoma*, and *malignant tumors* are the other morbid processes of this bone described.

Auricle.—A number of congenital varieties of malformations are described and figured, which have been collected from a number of sources.

Then follows a description of the pathological changes of the auricle, *othæmatoma*, *inflammations and their results*, *new growths*.

The *external meatus* is the next division, and treated of in the same order. In the description of the congenital malformations, *double* meatus is described as a rare affection. A case of Velpeau's is cited, in which one meatus led to the drum-membrane, while the second ended in the mastoid process. Such cases are to be referred to arrest in the closure of the first branchial cleft. The number of pathological changes described are quite numerous, and we therefore omit their enumeration.

As might be expected, the consideration of the changes in the drum-membrane and tympanum takes up a good share of the book.

A most minute and painstaking account is given of this very interesting subject. We have not space to even pass in review all the divisions of this part of the book, but can only stop to say that he who seeks for a description of any pathological change of which he has heard will find it here, and most likely by reading these chapters over become aware of those he never heard of before.

The Eustachian tube, *the mastoid process*, and finally *the inner ear*, are successively studied in the same careful and complete manner.

At the beginning of each division, or chapter, the literature of the subject is given, which, for purposes of reference, will prove of much value.

The plates are excellent—a feature of great merit in a book of this kind, where often so much more can be conveyed in a good drawing than by any mere description.

Dr. Green deserves the thanks of all those interested in the study of otology. He has succeeded in making a good translation in clear, concise, and readable English. For a book of reference, as well as of interest, it will be eagerly sought by many.

Art. II.—*Diphtheria: its Nature and Treatment, Varieties and Local Expressions.* By Morell Mackenzie, M. D. Lond., Senior Physician to the Hospital for Diseases of the Throat and Chest; Consulting Physician to the Northeastern Hospital for Children, and Lecturer on Diseases of the Throat at the London Hospital Medical College. London: J. & A. Churchill, 1879. 8vo, pp. 104.

A good book is always timely, and this latest contribution to the literature of diphtheria must be doubly welcome to the profession. In little more than one hundred pages Dr. Mackenzie presents, ably and satisfactorily, the definition and history, the etiology, the symptoms, the paralyses, the diagnosis, the pathology, the prognosis, and the treatment of diphtheria, with special accounts of laryngo-tracheal, nasal, and secondary diphtheria.

We will quote *verbatim* how diphtheria is defined, as this shows the author's standpoint, and is the key to what follows: "Diphtheria is a specific communicable disease, occurring epidemically, endemically, and solidarily,* and characterized by more or less inflammation of the mucous membrane of the pharynx, larynx, or air-passages, and by the formation on the surface of those parts—especially on the mucous membrane of the fauces and windpipe—of a layer or layers of lymph or false membrane, generally showing signs of bacteroid mycosis. During an epidemic, other mucous surfaces exposed to the air, and wounded surfaces of the common integument, occasionally, but less frequently, become covered with a layer of lymph, subsequently to, or independently of, a formation of membrane in the more ordinary situations. The disease is generally of an adynamic character, is often associated with a disturbance of the renal function (albuminuria), and is frequently followed by lesions of innervation, rarely giving rise to permanent paralysis. The symptoms, as regards respiration, vocalization, and deglutition, vary with the site of the disease. By far the larger proportion of fatal cases terminate by gradual apnœa, but a certain percentage sink from asthenia, blood-poisoning, and cardiac thrombosis."

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* As the term *sporadic* has come to carry with it the meaning of occurrence independently of any contagious influence, our author uses here the term *solidarily*, as expressive simply of the fact that a case occurs alone. We think "the point is well taken," and the word well chosen.

In his historical sketch, Dr. Mackenzie goes, we think, too far when he traces a knowledge of diphtheria back to D'hanvantare, an Indian physician, a contemporary of Pythagoras; nor is it possible to identify the Askara of the Talmud with diphtheria. It is also a mistake to state that Baillou "was the first to publish an accurate description," or that in Baillou's writings is "the first definite mention of a false membrane," i. e., a diphtheritic one. In fact, this does not occur until eighty years later, and the honor of publishing it belongs to his own fellow-townsman, Bennet, who, however, is not mentioned at all.

The chapters on etiology and pathology are exceedingly well written and valuable. "The exciting cause is a specific contagium, and those cases which appear to originate *de novo* probably always arise from the virus—often long dormant and forgotten—of previous cases. . . . The contagious principle has not been isolated, although it is highly probable that it consists of minute particles of matter, which are capable of floating in the atmosphere, and attaching themselves to rough surfaces. . . . That bacteria, micrococci, or other low vegetable organisms constitute it, cannot as yet be considered proved. . . . Some information has been obtained as to the atmospheric conditions and temperature under which the poison exists and flourishes, but considerable uncertainty exists as to the laws which govern its development and effect its diffusion. . . . The poison may be received into the system (*a*) by direct implantation; (*b*) through the circumambient air; (*c*) through the water that is drunk, or the food that is eaten. Further, it is possible that it may be occasionally introduced by inoculation, either with portions of false membrane or with the blood of a patient suffering from the disease. . . . The period of incubation is exceedingly short, generally two or three days; but, on the other hand, the germs of the disease may remain about the person subsequently attacked for some weeks before the complaint makes its appearance."

Our author considers in detail all these and many other points, such as predisponents, chemical and physical character —macroscopical and microscopical—of diphtheritic exudation, and the changes which may take place in the parotid and sub-maxillary glands, the lymphatic glands of the neck, the lungs, heart, kidneys, brain, and other tissues. As to the fact of the essential identity of croup and diphtheria, Dr. Mackenzie takes so decided ground that one chapter is headed "Laryngo-Tracheal Diphtheria, formerly called Croup." Nasal diphtheria is briefly but well described, as well as secondary diphtheria, which term is used to designate the diphtheria attacking persons already suffering from some other disease.

"The symptoms of diphtheria vary in different cases, from those of quite a slight sore throat to those of the most serious and malignant blood-poisoning. Between these two extremes we meet with every gradation of intensity. The presence of 'false membrane' in the throat is the characteristic symptom; but sometimes, in slight cases, the disease passes off without the formation of any membranous exudation, and occasionally the patient dies before it is developed. Again, the local affection is, in some cases, accompanied with considerable inflammation, while in others there is scarcely a trace of it. Hence it is convenient, in describing the symptoms, to classify the varieties of the disease. The following are the different constitutional forms: 1. The typical form; 2. The mild, or catarrhal form; 3. The inflammatory form; 4. The malignant form; 5. The gangrenous form; 6. The chronic form." Each of these forms is graphically described. The occurrences of albuminuria, variations of temperature, and cutaneous eruptions are also satisfactorily discussed; and the five and a half pages devoted to diphtherial paralyses comprehensively summarize what is known of these sequelæ.

The chapter on diagnosis, though good as far as it goes, is the least satisfying in the book. The differential diagnosis is incomplete; and, more remarkable still, the laryngoscopal diagnosis is not entered into detailedly. All Dr. Mackenzie says on this point is: "It is hardly necessary to add that, in all cases of suspected diphtheria it is the bounden duty of the practitioner to make a most thorough examination of the interior of the throat, supplementing it, if possible, by the use of the laryngoscope and rhinoscope. These instruments will often bring to light patches of exudation, and will thus give very material help toward a satisfactory diagnosis." Previously he had said of false membranes that "they may extend from the pharynx to the epiglottis and ary-epiglottic folds, and from thence, by the ventricular bands and vocal cords, into the trachea, and may only be arrested in the smaller bronchi." Under the heading of symptoms of laryngo-tracheal diphtheria, he says: "If a laryngoscopic examination can be accomplished, the mucous membrane of the larynx is seen to be of a bright red color, and, when the disease has existed for a few hours, some thin patches of false membrane may be perceived on it. I have often succeeded in seeing the false membrane with the laryngoscope, and still more often have been able to prove that cases of supposed croup were in fact examples of catarrhal laryngitis. The usually pendent position of the epiglottis in children, however, often prevents a satisfactory examination even in those of tractable disposition; and the timidity of early life is in itself often sufficient to render the employment of the laryngoscope impossible." And in a foot-note he refers us to Semeleder, "Die Laryngoscopie," 1863, p. 42; Türck, "Kehlkopfkrankheiten," p. 172, *et seq.;* Münch, "Wiener med. Wochenschrift," 1865, No. 10; Gottstein, "Berliner klin. Wochenschrift," 1867, p. 329. But he does not even further detail the laryngoscopic appearances, and this we certainly had a right to expect from a specialist like Dr. Mackenzie.

The terse remarks on prognosis are excellent. And what our author says of treatment, general and local, and tracheotomy, we commend most cordially to every medical man's attention. It is the outcome of his ripe experience. We shall make no extract, but, in conclusion, quote his words on prophylaxis, words which some may consider trite, but which can not be too often repeated, or too well heeded: "When inspecting the patient's fauces, or cleaning or changing the tracheotomy tube, the practitioner should be very careful to prevent any of the morbid secretions from coming into contact with his lips or mouth, fatal results having followed the neglect of this precaution. Like precautions should also be impressed upon the attendants who have charge of a case of diphtheria. Orders should at the same time be given that no one but the attendants should enter the sick-chamber except upon urgent necessity; and all linen, spittoons, or other articles which the patient may have used should be carefully disinfected. By adhering strictly to these rules, it is generally possible to prevent the extension of the disease."

ART. III.—*The Journal of Physiology.* Edited by MICHAEL FOSTER, M. D., F. R. S. Macmillan & Co.

THAT physiology in the widest sense of the word, together with anatomy, chemistry, histology, and pathology, forms the basis of medical science, and a knowledge of these subjects an essential part of a sound medical education, can not be successfully disputed. The greater number of the advances which have been made in the treatment of disease within the last few years—and the advance in medical science has been great during this period—have been due almost entirely to the increase in our knowledge of the above subjects; consequently he who desires to treat disease intelligently and successfully, or wishes to leave medical science more advanced than he found it, and to contribute something to the alleviation of human suffering, must bear in mind that there is little chance for his ultimate success in medicine if he neglects these most important branches of the subject. The study of physiology is becoming more and more a necessity as civilization and medical science advance. Especially is it to be recommended to the younger members of the profession, as it contributes so much to the formation of enlarged views on many subjects, and to future professional attainments. The majority of the leading scientific physicians of to-day are those who are known to be well versed in physiology, histology, and pathology.

The necessity of a knowledge of physiology being indisputable, we have in the present instance only to consider whether a necessity existed for the establishment of a new journal devoted to this subject, in addition to those previously in existence, and to weigh the probable future character and value of the new periodical. On these points we will be outspoken and impartial in our statements, believing that much of the second-class medical literature of the present day is caused by the existence of a superabundance of medical journals, and a consequent forced demand or acceptance of "articles" to supply them. Judging from the quality and number of the articles which have appeared in the other English journal specially devoted to anatomy and physiology, it is evident that there is no lack of material or scientific workers, as the contributions have almost invariably been of high excellence. But, though there was always material enough for one journal, perhaps there was not sufficient for two, and this question could only be answered by the number and quality of the articles which have appeared since the publication of the two journals. Five numbers have now appeared of Dr. Foster's journal; and while the "Journal of Anatomy and Physiology" shows no deterioration, the "Journal of Physiology," by its able articles, shows that Dr. Foster has conferred a great service on scientific medicine by bringing into existence and editing this new journal. Thirty original articles have already appeared in the journal, and some of them are of great value to the general practitioner. The simple fact of the journal being edited by so capable and distinguished a physiologist as Dr. Foster is a sufficient guarantee for the quality of the papers which will appear in its pages; and when it is considered that he has associated with him as associate editors some of the foremost physiologists of Britain, and has even drawn on this country for assistance in the work, the success of the publication should be great. We consider it the duty of every friend of scientific medicine to encourage such a worthy journal, and thus show their appreciation of the labors of those who work with such self-denial in a field from which no pecuniary advantages are to be obtained, and from which others reap the benefit. We wish the journal every success, knowing that it well merits it.

ART. IV.—*Transactions of the Pathological Society of Philadelphia.* Volume VII. Edited by J. HENRY C. SIMES, M. D., Lecturer on Histology in the University of Pennsylvania; Recorder of the Society. Philadelphia: J. B. Lippincott & Co. 1878. Pp. 175.

THIS number of the transactions of the Society is especially interesting on account of the full reports of many discussions which it contains upon a great variety of subjects. The specimens presented are classified according to the various systems to which they belong, and their number and variety would seem to indicate an active interest in pathology on the part of the members of the Society. We are especially interested in stating the fact that the descriptions of specimens, and of the methods by which they were obtained, as by operation, etc., are given decidedly from a pathological rather than from a clinical point of view. This is as it should be; and attention is called to it because it is not common to find a really pathological tone pervading the reports of meetings of pathological societies.

Among the unusual cases may be mentioned two of extra-uterine pregnancy, four aneurisms, and a case of elephantiasis of the penis. The reports of the Committee on Morbid Growths, which accompany descriptions of the macroscopic appearances of the growths themselves, are clear, lucid, and concise—in a few cases, perhaps, a trifle too concise. The volume concludes with a paper by Dr. Charles B. Nancrede on the "Causative Relation existing between the Anatomical Arrangement of Tissues at Various Ages, and their Morbid Growths." This much-debated question is briefly stated in an agreeable way, and its consideration, either here or elsewhere, should certainly command the attention of all progressive pathologists. On the whole, the Society is to be congratulated upon the appearance of the seventh volume of its transactions.

ART. V.—*Atlas of Skin Diseases.* By LOUIS A. DUHRING, M. D. Part IV., *Vitiligo*, *Alopecia areata*, *Tinea favosa*, *Eczema* (*rubrum*). Philadelphia: J. B. Lippincott & Co. 1878.

WE have already spoken, when reviewing the earlier parts of this publication, of its general plan and character, which consist essentially in colored lithographic representations of typical cases, with a page or two of text supplementing each plate with a detailed description of the case, and presenting a few general considerations of the disease and its treatment. We have already done justice to the carefulness and accuracy of the plates and to the ability and conscientiousness of the author. Of the plates now before us, the one representing *Vitiligo* is likely to convey an exaggerated and therefore misleading idea to the general practitioner, and the contrast between the patches and the normal skin has been brought out apparently by making not the patches light but the skin dark. The *Alopecia* plate is an exquisite representation of the lymphatic, unsound general condition so frequently indicated by the countenances of persons affected with this disease. The case, however, departs from the type in one respect—the edge of the main patch is not sharply defined, but is broken by small outlying bunches of hair. The remaining two plates—*Favus* and *Eczema*—are very good, and quite up to the high standard established by the first three numbers.

ART. VI.—*Visions: a Study of False Sight (Pseudopia).* By EDWARD H. CLARKE, M. D. *With an Introduction and Memorial Sketch* by OLIVER WENDELL HOLMES, M. D. Boston: Houghton, Osgood & Co., 1878. 12mo, pp. xxii.–315.

DR. HOLMES, in the "Introduction," has already written a comprehensive review of the work of Dr. Clarke. This is his last production, and he died before its completion. The author is able to explain by physiological processes the mechanism of visions which are actually observed by persons in apparent health, by those in disordered conditions, and by the dying.

He does not deny that persons at the moment of departure may look into the future; yet he thinks, in the vast majority of instances of death-visions, they are to be explained by natural processes. Dr. Clarke thinks that sight and hearing are functions of the brain rather than of the eyes and ears, and seemingly, for want of more expressive language, explains these visual phenomena by supposing that vivid impressions are stamped upon certain brain-cells in certain disordered conditions (usually anæmic) of the system and states of the circulation (congestion of the base of the brain), and, when there is some existing circumstance to act as a reminder, the image is brought out and actually seen by the individual.

Dr. Clarke also demonstrates that *death* is a painless process. The work is exceedingly interesting.

ART. VII.—*Antagonism of Alcohol and Diphtheria.* By E. N. CHAPMAN, M. D., etc. Brooklyn: "Union-Argus" Establishment, 1878. 12mo, pp. viii.–98.

THE author of this little volume is very enthusiastic in his belief that alcohol is antagonistic to the diphtheritic poison, claiming that, if it be given in considerable quantity, combined with quinine, as soon as the disease appears, its administration will be almost uniformly successful. He also thinks it is preventive.

The author thinks the disease is constitutional from the first, being due to some poison absorbed into the circulation. If this view is the correct one, alcohol can not in a true sense be considered antagonistic; for, after constitutional symptoms are once observed, its administration is only *measurably* successful. Heart-clot, heart-paralysis, and other paralyses can not certainly be prevented, although alcohol will sustain the heart's action in a general way. Accepting the view that the affection is at first local, the explanation of the author's truly wonderful success may be in the possibility that alcohol may exert a destructive influence on the life of the diphtheria germ, by its contact with the membrane.

ART. VIII.—*Lectures on Diseases of the Nervous System.* Delivered at Guy's Hospital, by SAMUEL WILKS, M. D., F. R. S. Philadelphia: Lindsay & Blakiston, 1878. Pp. 470. Price, $5.

THE author of this series of lectures explains in his preface the manner in which the volume has grown, so to speak, out of the necessities of his pupils, instead of having been prepared as a systematic treatise. Much of the material has already appeared in the form of separate lectures, and in the "Guy's Hospital Reports," but much additional matter is published in the present volume. The author claims, with good reason, that he has made some original contributions to cerebral physiology and pathology. In many departments the work will be found very complete and satisfactory. The author's style is eminently perspicuous, and his views are based on common sense rather than on theory or speculation. The first part of the book is devoted to the brain, the second part to the spinal cord, the third part to functional and general diseases, and the fourth part to the nerves. The student of nervous diseases will find the volume rich in valuable facts drawn from a large experience, and the general practitioner will find it very pleasant and profitable reading.

ART. IX.—*Lectures on Medical Jurisprudence.* By FRANCIS OGSTON, M. D., Professor of Medical Jurisprudence and Medical Logic in the University of Aberdeen. Edited by FRANCIS OGSTON, Jun., M. D., Assistant to the Professor of Medical Jurisprudence, and Lecturer in Practical Toxicology in the University of Aberdeen. Philadelphia: Lindsay & Blakiston, 1878. Pp. 664.

THIS work, it is claimed, is specially adapted to the wants of the profession in Scotland; but by far the greater part of the volume is of general interest to practitioners, not only in Great Britain but in this country also. It contains a vast amount of material from all sources, admirably arranged and digested. There is a judicial tone about the lectures that is well suited to the subject, and there are a detail and comprehensiveness in the procedures described and recommended that leave no doubt of the author's familiarity with his subject, and with the authorities who have written upon it. We have not space at present to review the work, but, as it belongs to a department of medicine that is not overburdened with good books, we commend it with confidence as useful in the library alike of the physician and the lawyer. The volume closes with a good chapter on general toxicology.

ART. X.—*Vorträge aus dem Gesammtgebiete der Augenheilkunde für Studirende und Aerzte.* Von Dr. LUDWIG MANTHUER, k. k. Universitäts-Professor in Wien. Erstes Heft: Die Sympathischen Augenleiden. Erste Abtheilung: Aetiologie, Pathologie. Wiesbaden: Verlag von J. F. Bergmann. 1878.

THIS is the first of a series of lectures upon ophthalmology, after the pattern of Volkman's and Seguin's clinical lectures, which the author proposes to publish. They are adapted to the wants of both the specialist and general practitioner.

The specimen number sent us treats of the etiology and pathology of sympathetic affections of the eye.

Whether such an enterprise can succeed in Germany, we do not presume to judge; but the peace of mind of the editor who should undertake it here would be sorely tried.

This number is very interesting, and can be read with pleasure and profit by all. If the succeeding numbers come up to it, we may predict popularity for the series, and we hope success.

ART. XI.—*A Manual of Physical Diagnosis.* By FRANCIS DELAFIELD, M. D., and CHARLES F. STILLMAN, M. D. New York: William Wood & Co. 1878.

"THIS manual," say the authors in their preface, "is intended for the use of those who have to teach and to learn the art of physical diagnosis." The test is concise, and yet includes all that is necessary for the purpose in view. Blank leaves for notes or diagrams are bound with the text. The colored superimposed plates at the end of the work, after Witkowski, of Paris, constitute a most striking feature, exhibiting, almost as plainly as could be done by a model, the relative position of the various organs, and their relation to the bony structure. We congratulate the students of physical diagnosis on the publication of this work, which, though small and unpretentious, reflects credit on both authors and publishers.

ART. XII.—*Hydrocele: its Several Varieties and their Treatment.* By SAMUEL OSBORN, F. R. C. S., Late Surgeon to St. Thomas's Hospital. London: J. & A. Churchill, 1878.

IN this little monograph of eighty-four pages the author describes very lucidly the several forms of hydrocele, their anatomy, etiology, diagnosis, and treatment. He adopts the anatomical classification, and makes the four following varieties: 1. Hydrocele of the tunica vaginalis. 2. Hydrocele of the whole vaginal process of peritonæum (congenital). 3. Hydrocele of the funicular portion of the vaginal process of peritonæum. 4. Encysted hydrocele.

Art. XIII.—*Modern Medical Therapeutics: a Compendium of Recent Formulæ and Specific Therapeutical Directions, from the Practice of Eminent Contemporary Physicians, American and Foreign.* By George H. Napheys, A. M., M. D., etc. Sixth edition, enlarged and revised. Philadelphia: D. G. Brinton. 1879.

It is less than a year since we called attention to the improvements in the fifth edition of this work. We need only say of the new edition that it is not a mere reprint of its predecessor, but contains references to not less than one hundred and eighty new authors, besides additions to the subjects treated of, including typhus fever, yellow fever, mercurialism, plumbism, etc. The work is better and more complete than it has ever been before.

Art. XIV.—*An Introduction to Pathology and Morbid Anatomy.* By T. Henry Green, M. D. Lond., Lecturer on Pathology and Morbid Anatomy at Charing Cross Hospital Medical School, etc. Third American, from the Fourth Revised and Enlarged English Edition. With 132 Illustrations. Philadelphia; Henry C. Lea. 1878.

This is unquestionably one of the best manuals on the subject of pathology and morbid anatomy that can be placed in the student's hands, and we are glad to see it kept up to the times by new editions. Each edition is carefully revised by the author, with the view of making it include the most recent advances in pathology, and of omitting whatever may have become obsolete.

Books and Pamphlets Received.—The Croonian Lectures on Certain Points connected with Diabetes. Delivered at the Royal College of Physicians. By F. W. Pavy, M. D., F. R. S., Physician to and Lecturer on the Practice of Medicine at Guy's Hospital. London: J. & A. Churchill, 1878. Pp. 126.

A Series of American Clinical Lectures. Edited by E. C. Seguin, M. D. Vol. III. No. IX. (Whole No. 33.) Operation for Closure of Cleft of the Hard and Soft Palate. By A. Vanderveer, M. D., Professor of the Principles and Practice of Surgery, Albany Medical College, etc. Vol. III. No. X. (Whole No. 34.) On the Treatment of the Various Forms of Acne and of Rosacea. By R. W. Taylor, M. D., Professor of Diseases of the Skin in the University of Vermont, Surgeon to Charity

Hospital, etc. Vol. III. No. XI. (Whole No. 35.) Two Lectures on Lister's Antiseptic Method of treating Surgical Injuries. By James L. Little, M. D., Professor of Surgery in the Medical Department of the University of Vermont, etc. New York: G. P. Putnam's Sons, 1878.

Pathological and Practical Observations on Diseases of the Abdomen, comprising those of the Stomach and Other Parts of the Alimentary Canal, Œsophagus, Cæcum, Intestines, and Peritonæum. By S. O. Habershon, M. D., London, Senior Physician to and late Lecturer on Principles and Practice of Medicine at Guy's Hospital, etc. Third edition, considerably enlarged and revised. Philadelphia: Lindsay & Blakiston, 1878.

Conspectus of Organic Materia Medica and Pharmacal Botany, comprising the Vegetable and Animal Drugs: their Physical Character, Geographical Origin, Classification, Doses, Adulterations, etc. Table of the Tests and Solubilities of the Alkaloids appended. By L. E. Sayre, Ph. G. Philadelphia: D. G. Brinton, 1879. Pp. 212.

The Temperaments, or the Varieties of Physical Constitution in Man, considered in their Relations to Mental Character and the Practical Affairs of Life, etc. By D. H. Jacques, M. D. With an Introduction by H. S. Drayton, A. M. New York: S. R. Wells & Co., 1878. 12mo, pp. 350. Price, $1.50.

The Localization of Cerebral Disease. Being the Gulstonian Lectures of the Royal College of Physicians for 1878. By David Ferrier, M. D., F. R. S., Fellow of the Royal College of Physicians; Professor of Forensic Medicine, King's College, etc. New York: G. P. Putnam's Sons, 1879. Pp. 142. Price, $2.

On Rest and Pain. A Course of Lectures on the Influence of Mechanical and Physiological Rest in the Treatment of Accidents and Surgical Diseases, and the Diagnostic Value of Pain. Delivered by John Hilton, F. R. S., F. R. C. S. Edited by W. H. A. Jacobson, F. R. C. S. Second edition. New York: William Wood & Co. 1879.

Medical Chemistry, including Outlines of Organic and Physiological Chemistry. Based in part upon Riche's "Manuel de Chimie." By C. Gilbert Wheeler, Professor of Chemistry in the University of Chicago. Philadelphia: Lindsay & Blakiston. Chicago: S. J. Wheeler. 1879. Pp. 424. Price, $3.

A Practical Treatise on the Diseases of the Testis and of the Spermatic Cord and Scrotum. By T. B. Curling, F. R. S., Consulting Surgeon to the London Hospital, etc. Fourth edition, revised and enlarged. London: J. & A. Churchill, 1878.

The Mechanical Treatment of Sterility, with a Report of Cases. A Paper read before the Maine Medical Association, June 11, 1878. By S.

C. Gordon, M. D., of Portland, Lecturer on Diseases of Women in the Portland School for Medical Instruction, etc.

Differential Diagnosis: a Manual of the Comparative Semeiology of the more Important Diseases. By F. de Havilland Hall, M. D., Assistant Physician to the Westminster Hospital, London. American edition, with extensive additions. Philadelphia: D. G. Brinton, 1879. Pp. 206.

Transactions of the Colorado Medical Society. Seventh Annual Convention, held at Denver, June 12 and 13, 1877. Eighth Annual Convention, held at Georgetown, June 11 and 12, 1878.

Total Abstinence. A course of addresses by Benjamin Ward Richardson, M. D., F. R. S., etc. London: Macmillan & Co., 1878. Pp. 120. Price, 50c.

Ninth Report of the St. Mary's Free Hospital for Children (under the charge of the Sisters of St. Mary), 407 West 34th St., from January 1 to September 30, 1878. Founded 1870.

Transactions of the American Otological Society. Eleventh Annual Meeting, Newport, R. I., July 24, 1878. Vol. II., Part 2. Boston: Houghton, Osgood & Co.

Change: the Whisper of the Sphinx. By William Leighton. Philadelphia: J. B. Lippincott & Co., 1879.

New and Original Theories of the Great Physical Forces. By Henry Raymond Rogers, M. D. Published by the author. Dunkirk, N. Y., 1878.

Annual Report of the Surgeon General U. S. A., 1878.

Reports on the Progress of Medicine.

CONTRIBUTED BY DR. EDWARD FRANKEL.

SURGERY.

On Sterility in the Male. ("Wien med. Presse," 1878, 1 and 3.)—Ultzmann by this term designates the not infrequent condition of incompetence to generate children while the male organ still has the power for functional performance. It is erroneous to believe that, when man possesses the *potentia coeundi* and *ejaculatio seminis*, he is also capable of generating. In accordance with this popular erroneous conception, the author states that often, when marriages are sterile, the wife alone is subjected to operative and other therapeutic measures, the generative power of the husband, in view of his potency, being declared perfect. Instead of watering-place cures and operative procedures on the os uteri, a microscopical examination of the male semen would often have cleared up the state of affairs. The author states his belief that sterile marriages are more often due to male than to female sterility. In male sterility, either no sperm is ejaculated during coition or the semen is wanting in spermatozoa. We thus distinguish between aspermatism (absence of semen) and azoöspermy (semen without spermatozoa). In the former, either no semen is generated or, from a mechanical impediment in the ductus ejaculatorius, it is not discharged. Such cases with normally developed genitals and without demonstrable obstruction are very rare. Schulz thinks that the cause for such condition must be sought for in a non-irritability of the reflex ejaculation center. Temporary aspermatism with normal genitals and perviousness of the vas deferens is more often met with. Such patients have nocturnal pollutions consisting of semen containing spermatozoa which they are unable to ejaculate during coition. This form is especially found in nervous individuals, abnormally excited by excesses or masturbation, or who dread the failure of the act, or who after gonorrhœa have suffered from prostatitis, orchitis, and cystitis. Temporary aspermatism is also found with very light strictures. The semen is forced into the urethra, but is not discharged anteriorly on account of the stricture, nor posteriorly on account of the swelling of the caput gallinaginis; when the penis becomes flaccid, most of the semen passes into the bladder, only a few drops being expelled through the meatus. But the most frequent cause of male sterility is azoöspermy. These patients do not differ as regards sexual capacity from those possessing normal sperm. The condition is either permanent or temporary. Temporary, generally after excesses, gonorrhœa, prostatitis, etc.; the spermatozoa are only diminished or altered. Permanent azoöspermy is found with degeneration or absence of the testicles or as the conclusion of a gonorrhœal process. When the inflammatory adhesion has become consolidated, the sterility is incurable. No conclusion as regards the quality of the semen can be drawn from the size of the testicles. Very small, soft, atrophic testicles and those with induration of the epididymis call for an examination of the semen. A brick-red or yellowish coloration of the pollutions will allow of a conclusion regarding the admixture of pus or blood, but in permanent azoöspermy the semen has its normal color. Freshly ejaculated semen in azoöspermy coagulates as quickly as normal semen, has the peculiar odor, and the quantity is not diminished. Thin watery semen is not always poor in spermatozoa, and *vice versa.* Normal semen poured into a small measuring glass, and left standing from 12 to 24 hours, deposits very slowly, and forms a massive whitish sediment composing one third or one half the entire volume. The deposit from aspermatic semen is very slight, the thinness of the deposit is proportionate to the scarcity of spermatozoa, and more sperm-crystals can be demonstrated. Spermatozoa may be wanting in the following varieties of semen: 1. In catarrhal and purulent semen: the amount of ejaculation and consistency are normal, and there is an abundant whitish deposit. Microscopically no spermatozoa are found; in their stead epithelium, pus-cells, and single blood-cells. 2. When the pus-cells become diminished we have watery semen, also ejaculated in normal amount, and coagulating to a trembling jelly immediately after ejaculation, with little sediment. Microscopically are found lymph-cells, epithelium, and detritus. 3. Colloid semen: a thick fluid, ejaculated in normal amount and retaining a white color similar to boiled starch. The microscope shows no spermatozoa nor sperm-crystals. The second and third varieties usually determine permanent sterility.

E. F.

Miscellany.

The American Public Health Association.—At the meeting held last November the subject of yellow fever was reported on by the commission appointed for that purpose. Dr. Bemiss, of New Orleans, as President of the Commission, made a report containing many interesting facts regarding the origin of the fever in New Orleans and elsewhere, and concluding with the following statements:

1. We have not in a solitary instance found a case of yellow fever which we could justifiably consider as of *de novo* origin, or indigenous to its locality.
2. In respect to most of the various towns which we visited, and which were points of epidemic prevalence, the testimony showing importation was direct and convincing in its character.
3. The transmission of yellow fever between points separated by any considerable distance appeared to be wholly due to human intercourse. In some instances the poison was carried in the clothing, or about the person of people going from infected districts; in other instances it was conveyed in such fomites as cotton-bagging, or goods of some description, or bedding and blankets.
4. The weight of testimony is very pronounced against the further use of disinfectants. Physicians in infected towns, almost without exception, state that they are useless agents to arrest the spread of yellow fever, while some of them affirm that their vapors are seriously prejudicial to the sick.
5. Personal prophylaxis, by means of drugs or other therapeutic means, has proved a constant failure. A respectable number of physicians think the use of small doses of quinine of some use in prevention.
6. Quarantines, established with such a degree of surveillance and rigor that absolute non-intercourse is the result, have effectually and without exception protected those quarantined from attacks of yellow fever.

Dr. Cochran, of Mobile, reported on the outbreak of yellow fever in Grenada, and Dr. E. S. Howard, of Baltimore, reported on the disease as it appeared in Baton Rouge and Placquemine.

Dr. Billings, U. S. A., for the committee to which the report was referred, stated that the preliminary conclusions of the commissioners were in accordance with the prevailing opinion of the profession, with the exception of that relating to disinfectants; but that the investigations should take a much wider range, in order to include a complete knowledge of the cause of yellow fever.

Dr. Albert L. Gihon, U. S. N., reported the experience of the medical officers of the navy on the subject of yellow fever.

It is to be hoped that the Congressional Committee on yellow fever will report fully on some important points which the previous committee, for want of time, passed over hastily.

New Journals.—We have received No. 1, Vol. I., of the "St. Louis Courier of Medicine and Collateral Sciences," a handsome monthly published by the Medical Journal Association of Missouri. In the advertising pages of the "Courier" the names of forty-two physicians are published as "stockholders" in said association, John T. Hodgen, M. D., being president for the year 1879. The "Courier" gives one hundred and twenty pages of reading-matter, including several excellent reports of cases, translations, proceedings of societies, etc., etc.

We have also to acknowledge No. 1, Vol. I., of the "Southern Practitioner," a monthly journal of medicine and surgery, of fifty pages, published in Nashville, Tennessee, and edited by Drs. G. S. Blackie, D. J. Roberts, T. C. Dow, and Duncan Eve. The editors appeal to the profession for aid in their enterprise, and disdain any selfish motive therein. They say: "The harvest is great, the laborers are few, and the editors enter upon it, trusting that with the blessing of God, and the aid of other (!) professional brethren, they may, in some degree, be instrumental in the improvement and advancement of a science whose sole, unselfish aim is to benefit the human race."

Still another No. 1, Vol. I., is announced for the present month, under the title of "Archives of Medicine," a bi-monthly journal. It is to be edited by Dr. E. C. Seguin, assisted by Drs. T. A. McBride, M. D. Mann, and Lewis A. Stimson, and published by Putnam's Sons, of this city. Dr. Seguin's experience and good judgment as an editor, and the known abilities of his assistants, will insure the "Archives" a favorable reception, and render it worthy of success.

Appointments, Honors, etc.—The late Dr. Rokitansky died poor, and his widow now receives his pension from Government, with a special donation added. Mr. Spencer Wells has been elected honorary member of the Dresden Gesellschaft für Natur-und-Heilkunde "in recognition of his eminent merits in medical science." Dr. Da Costa's work on medical diagnosis has been translated into German by Dr. H. Engel, of Philadelphia, and is to be published shortly by Hirschwald. Dr. William Osler has been appointed one of the attending physicians to the Montreal General Hospital. Dr. Fordyce Barker has been elected President of the New York Academy of Medicine for the ensuing year. Dr. A. L. Ranney has been elected Adjunct-Professor of Anatomy in the University of New York. A new chair has been created in the Medical School of the University of Pennsylvania—that of "The Anatomy and Surgery of the Joints."

Professor Paul Bert has been elected Perpetual President of the Société de Biologie. The position was vacant by the death of Claude Bernard. Professor Marey has been elected successor to Claude Bernard in the French Academy of Sciences.

The New York State Woman's Hospital.—The following gentlemen constitute the present staff of assistant surgeons: Dr. Emmet's assistants are Drs. B. Emmet and George T. Harrison; Dr. Thomas's assistants are Drs. Charles S. Ward and Henry D. Nicoll; Dr. Bozeman's assistants are Drs. J. E. Janvrin and H. Goldthwaite; Dr. Noeggerath's assistants are Drs. C. Mackenzie and H. Griswold; Dr. Hunter's assistants are Drs. C. Cleveland and E. H. Peaslee; Dr. Lee's assistants are Drs. A. A. Smith and H. T. Hanks.

The house surgeons are Drs. James L. Perry and F. H. Hoadley; senior assistant house surgeons, Drs. G. E. Munroe and J. A. Van Houten; junior assistant house surgeons, Drs. P. G. De Saussure and George E. Abbott.

Pond's Improved Sphygmograph.—Recent improvements in this instrument have greatly increased its delicacy and the facility with which it can be employed. The recording apparatus is simple and efficient, and a graduated scale enables the observer to note the exact amount of pressure applied to the artery in each tracing. Like all other delicate instruments, the sphygmograph requires some practice in its use; but we believe that satisfactory results can be obtained more readily with this than with the more complicated apparatus generally used abroad. The great advantage of portability renders this instrument available in a relatively large number of cases, as it can be readily carried in the pocket, and its application need take no more time than the use of the clinical thermometer.

Medical Students in Great Britain.—The total number of medical students in the metropolitan and provincial schools during the year 1877 is officially reported as 2,333. In 1867 the total number was only 1,382.

The Primary Anæsthesia of Ether.—Dr. J. H. Packard, in the "Philadelphia Medical Times" of December 21st, thus calls attention, in the course of an address on minor points in surgery, to the primary or temporary effects of ether:

"In regard to the first insensibility from ether, I would say a few words, although some of you are already acquainted with its advantages. It is a matter of very great importance, and I beg all of the members to try it for themselves. For the short operations of minor surgery, and the reduction of dislocations, or opening of abscesses, it is extremely useful and of every-day application. Such a patient steps into your office, and you wish to operate without causing him pain or incapacitating him from attending to his business for the remainder of the day. Let him lie down upon the sofa, and take the ether-inhaler, or a sponge wet with ether, in his own hand, directing him to hold the other arm up in the air. After breathing the ether for a few minutes, the arm will drop, and you will have from thirty to fifty seconds of unconsciousness in which to operate. The sponge is removed, and the patient is ready to go about his business. It gives rise to no headache, nausea, or other unpleasant symptom, and is particularly useful in children. The chief source of disappointment is in not recognizing the right moment, for, if this is allowed to pass, unconsciousness will not again occur until full etherization. The first insensibility is sure to come. When the arm wavers, be ready, and as soon as it drops perform the operation; there will be no pain felt.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from December 14, 1878, *to January* 13, 1879.

Janeway, J. H., Major and Surgeon.—Assigned to temporary duty at Fort Wood, New York harbor. S. O. 231, Department of the East, December 16, 1878.

Tilton, H. R., Major and Surgeon.—The order granting him an extension of his leave of absence for two months is amended to grant said extension on surgeon's certificate of disability. S. O. 274, A. G. O., December 21, 1878.

Brown, H. E., Captain and Assistant Surgeon.—From and after January 1, 1879, to take station at Camp Guilford D. Bailey, near San Antonio, Texas. S. O. 264, Department of Texas, December 16, 1878.

Kinsman, J. H., Captain and Assistant Surgeon.—Leave of absence extended one month. S. O. 104, Division of the Atlantic, December 23, 1878.

Bartholf, J. H., Captain and Assistant Surgeon.—Assigned to duty as post surgeon at Alcatraz Island, California. S. O. 187, Division of the Pacific and Department of California, December 19, 1878.

Loring, L. Y., Captain and Assistant Surgeon.—Assigned to duty at Fort Hays, Kansas. S. O. 226, Department of the Missouri, December 12, 1878.

Semig, B. G., First Lieutenant and Assistant Surgeon.—Now on leave of absence, to report in person to Commanding General Department of the South for assignment to duty. S. O. 7, A. G. O., January 9, 1879.

Rosson, R. L., First Lieutenant and Assistant Surgeon.—Assigned to duty at Camp Apache, A. T. S. O. 149, Department of Arizona, December 23, 1878.

Gray, C. C., Major and Surgeon.—Relieved from duty in Department of the Missouri, to proceed to his home, Chester, N. Y., and await further orders. S. O. 7, A. G. O., January 9, 1879. Retired from active service in conformity with Section 1252, Revised Statutes. S. O. 8, A. G. O., January 10, 1879.

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Original Communications.

ART. I.—*The Nature and Diagnosis of Neurasthenia (Nervous Exhaustion).** By GEORGE M. BEARD, M. D., New York.

NERVOUS exhaustion (neurasthenia) is in this country more common than any other form of nervous disease. With the various neuroses to which it is allied, and to which it leads, it constitutes a family of functional disorders that are of comparatively recent development, and that abound especially in the northern and eastern part of the United States, although, during the last five years, they have been studied more or less in England and on the Continent.

But, in spite of its frequency and importance, neurasthenia, although long recognized, in a vague way, among the people and the profession under such terms as "general debility," "nervous prostration," "nervous debility," "nervous asthenia," "spinal weakness," and, more accurately, by some of its special symptoms and accompaniments, as "spinal irritation," "nervous dyspepsia," cerebral and spinal anæmia and hyperæmia, irritable ovary, irritable uterus, uterine asthenopia, and sexual exhaustion, yet until quite recently no attempt has been made to formally introduce it into science, by describing in detail all its symptoms, and showing their relation to each other and to the morbid nervous condition of which they are all the results and expressions. My first paper on this subject, based on the study of thirty cases, was prepared in 1868, was read before the New York Medical Journal Association, and was published in the "Boston Medical and Surgical Journal" April 29, 1869, and subsequently appeared in the first edition of Beard and Rockwell's "Electricity."

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* Read before the New York Neurological Society, January 5, 1879.

At first the subject excited absolutely no interest in the profession, although at that very time the practical treatment of the disease and of allied diseases by electricity was becoming quite popular. Indeed the use of the general and central methods of applying electricity, and the study of neurasthenia, for which these general and central methods are specially indicated, were worked up side by side. During the last five years, however, this topic has been discussed, incidentally if not elaborately, by a number of writers in different countries, among whom may be mentioned Hugh Campbell, of London, who issued a monograph on nervous exhaustion based almost entirely on the essay above referred to, amounting in fact to a diluted republication and adding very little to our knowledge of the disease; Dr. Jewell, of Chicago, who has referred to the subject very intelligently in lectures and review articles; Dr. Mitchell, of Philadelphia, in his work on "Fat and Blood"; by other writers of this city in various articles in the medical journals; by Dr. Goodell, of Philadelphia, in his recent address on Neurasthenia before the American Gynæcological Society; and, most systematically and successfully of all, by Professor Erb, of Heidelberg, who, though supplied with comparatively a limited amount of clinical material, has entered upon the study of the whole subject with the scientific spirit and with the all-sidedness and thoroughness characteristic of the Germans.*

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* Under the heading "Nervous Asthenia"—a term suggested by Dr. Fordyce Barker—Dr. Flint, in the first edition of his work on Practice, makes a few remarks on this subject.

"The term *neurasthenia* was devised by me independently, at the time

April 4, 1828, I read before the New York Academy of Medicine a paper "On Certain Symptoms of Nervous Exhaustion," designed to be supplementary to the original paper on neurasthenia, prepared ten years ago, describing a number of new symptoms or those but partially noticed heretofore, and yet further differentiating the disease. This paper, which was based on a study of several hundred cases of neurasthenia in its different forms and phases, was subsequently published in the "Virginia Medical Monthly" for June, 1878.

So far as I know none of the recent standard works on nervous diseases in any language have any chapter on neurasthenia, with the single exception of Erb, who, both in the nomenclature and general description, follows my first paper.

The terms *cerebrasthenia* and *myelasthenia* were also devised independently, and were first used in a paper on this subject in the "Journal of Nervous Diseases." Dr. Jewell states that the term cerebrasthenia has been employed by Robert Whytt, of England. The literature of special symptoms and phases, as spinal irritation and oxaluria, is quite extensive, but does not embrace the theory of neurasthenia as accounting for those symptoms.

In the volume of Ziemssen's "Cyclopædia" that treats of diseases of the spinal cord, which was prepared by Professor Erb, of Heidelberg, one of the very ablest of the German neurologists and electro-therapeutists, and one of the most careful, analytic, and philosophical of recent medical writers, is found the chapter on spinal exhaustion or *neurasthenia spinalis*, as he terms it, wherein he not only confirms the description and analysis and nomenclature of neurasthenia which I gave several years ago, but adds some judicious and valuable observations of his own. Erb, after giving a correct analysis

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when my first article on the subject was prepared, without any knowledge that the word had ever before been used.

" Dr. Jewell, of Chicago, in a series of lectures on Neurasthenia now being published in the "Journal of Nervous Disease," refers to the following terms that have been employed by writers—*nervosime* (Bouchut); *état nerveux* (Sandras and Bourgignon); *nervopathie proteiforme* (Cevise); *nervo-spasmie* (Brachet); *nervo-erethesmus* (Henle); *neurœmie* (Laycock).

of many of the more prominent symptoms of this disease, details a typical case, and observes that he has seen over two dozen similar cases. This observation is of value as showing that this malady is not confined to the United States, where it was first systematically described, and where it is certainly far more common than in all the world besides, and that the symptoms, behavior and clinical history are the same in both countries. At the time when my first article on this subject was prepared (1868), I used the general term *neurasthenia* to cover all forms and types of nervous exhaustion, the symptoms coming from the brain and from the spinal cord being described together and indiscriminately. This imperfection Professor Erb has repeated, and, to that extent, the value of his essay is impaired, since, in strictness, the disease neurasthenia should appear both in the volume on the brain and on the spinal cord, in the former as *cerebrasthenia*, or exhaustion of the brain, in the latter as *myelasthenia*, or exhaustion of the spinal cord. It is this latter form, or *myelasthenia*, that Erb attempts to describe in his volume under the term *neurasthenia spinalis;* but of necessity many of the symptoms connected with the brain are included in his description.

Erb makes the further mistake, but one in which he is sustained by a large body of writers on the nervous system, of treating of spinal irritation as a separate and special disease instead of one of the many symptoms of myelasthenia, or spinal exhaustion, which it really is; and he further overlooks the existence of cerebral irritation, which is just as real though not quite so frequent as spinal irritation; and he evidently fails to recognize the fact that the general irritation or tenderness of the various bones of the whole body, to which he gives the name hyperæsthesia, is in scientific analysis a condition to be accounted for just as much as spinal irritation. It is due, however, to Professor Erb to say that he evidently suspects the justness of his analysis, and in one place clearly intimates that he has doubts whether spinal irritation should be considered as a distinct disease; and he confesses that it is impossible to draw the lines between spinal exhaustion and spinal irritation. The truth is that in his mind, as in the minds of the profession at large, neurologists and general practitioners alike, there has been a fearful and wondrous confusion of ideas on this whole subject; these functional nervous symptoms have, in short, always slipped from our grasp whenever we have attempted to seize them and bring them into science; and in discouragement and disgust, and in a spirit of skepticism which is the highest form of credulity, physicians, imitating the unscientific example of the laity, have denied the existence of such symptoms, just as they formerly denied the existence of diphtheria and hay fever.

The purpose of the present essay is to study in detail the differential diagnosis of neurasthenia, and of the functional nervous diseases allied to it and to which it leads.

The importance of making a differential diagnosis between maladies of the type here referred to and organic or structural disease of the brain and spinal cord is incalculable; mistakes of the most solemn character are constantly being made, both in the literature of the subject and in the practice of physicians, from an imperfect understanding of the difference between functional and organic disease of the nervous system. Very many of the symptoms of functional and organic disease are the same, or apparently the same, and there is an easy liability to confound them, especially when, as is often the case, the patient or the doctor is disturbed in his judgment by severe apprehensions. A number of times I have been consulted by medical men in regard to themselves, for symptoms which for a long time had kept them in a state of alarm, if not despair, lest they might be the precursors of incurable disease of the brain or spinal cord; and after an interview I have had the pleasure of assuring them, in most positive language, that it was not only improbable but wellnigh impossible for them to get up, if they should try, any organic or structural disease of the nervous system; that they might continue in their chosen profession as long as they should live—which might be and probably would be many years—provided only they could carry out certain practicable hygienic and medical suggestions. How students of medicine are apt to imagine themselves into heart disease when attending lectures on that subject, everybody knows; it is not so well known that in recent times, since so much attention has been given to diseases of the nervous system, medical students and physicians have likewise the habit of manufacturing the grave disorders of the brain and spinal cord. For all this our neurological literature is partly to be blamed, inasmuch as none of the European works on nervous diseases anywhere make clear the differential diagnosis between functional and organic disease; on the contrary, the German writers, even the best of them, in their writings on such organic diseases as locomotor ataxy, progressive muscular atrophy, etc., include many of the signs of neurasthenia, evidently not suspecting that functional and organic affections may have at the outset the same symptoms, and for a time may run along together side by side perfectly parallel, and to an ordinary observer absolutely identical. In connection with this subject the German writers have also made the mistake of assuming and of teaching that the *causes* of functional disease—such, for example, as sexual excess—are also likewise the causes of organic lesions such as are found in ataxy and muscular atrophy. These errors have been copied by authors in other countries and languages, and physicians and medical students, on reading these works and listening to such teaching from their professors, begin most naturally to ask themselves whether they are going the road that leads to nervous destruction; and, on a little reflection, there is but slight difficulty in recalling and conjuring up almost any number of symptoms which, according to the books, ought to make them permanent and hopeless invalids, if not send them to a speedy grave. The more intelligent a physician is, the more thoroughly he keeps up with the literature of his profession, and the more liable is he to fall into this annoying and alarming mistake.* One of the best physicians I know—a man of large experience and of general culture and accomplishments—consulted me a number of years ago in a state of intense depression and alarm, on account of a myelasthenia which, in his anxiety, he mistook for hopeless spinal disease. I had the great pleasure of comforting him with the assurance that he had not one proof of structural disorder, and that by a course of treatment which I indicated to him he could substantially recover. The prediction was verified. Since that time I have several times seen this gentleman, or have heard from him, and know that he is comparatively well and engaged in the practice of his profession. Quite recently an experienced medical gentleman from a distant city came to me with a personal history of neurasthenia, by which he had been kept in chronic fear lest it might be necessary for him to abandon his calling. He declared that he would rather die than become a hopelessly paralyzed invalid; and yet he had not one evidence of organic nerve trouble, although his condition demanded attention and treatment. Not long ago a patient consulted me for cerebrasthenia and myelasthenia combined, with many of the typical symptoms of both conditions. About the same time she also consulted another physician, who made the diagnosis of rush of blood to the head, and predicted apoplexy. There was no doubt that the patient did have an unbalanced circulation, and at times was afflicted, as such cases often are, with temporary congestions of the brain and spine; but these congestions were not the disease, any more than the black vomit is yellow fever; and there was no likelihood that they would lead to apoplexy, although there was just ground for fear that her condition unrelieved might in time lead to nervous invalidism.*

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* On this subject Erb does not speak so positively. He says: "I am unable to state whether there are incurable cases, and whether the disease may last a great many years. I also am in doubt whether the disease can pass into any tangible chronic form of spinal disease (myelitis, sclerosis, gray degeneration. . . . Most patients are hypochondriacal in their feelings; and, if the physician is the sufferer, he is apt to let his mind dwell on this anticipation, and to be made wretched by the thought." That the disease may last many years there is no doubt; that it does not often lead to organic spinal disease is equally clear.

Distinguished from Organic or Structural Nervous Disease, the points in the differential diagnosis of neurasthenia from the organic disease which it simulates, and with which it is so often confounded, are as follows:

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* Erb remarks on this point: "Abundant experience has shown me that these cases are not rare, and are of great practical consequence. For they cause much anxiety, not only to the patient, but also to the physician, owing to the striking resemblance they possess to the first stage of severe disease of the cord."

1. *The symptoms of organic disease are usually fixed and stable, while very many of those of neurasthenia and allied states are fleeting, transient, metastatic, and recurrent.* Very many of the signs of neurasthenia and allied states appear in organic affections, and in both conditions they are precisely the same, so that of themselves alone they would be no guide in the differential diagnosis; spinal tenderness, impaired nutrition of the skin and hair, shooting and stabbing and boring neuralgias, cardiac palpitation, insomnia, or drowsiness, failure of memory, sexual exhaustion and emissions, mental depression, pain and heaviness in the head and back, disturbances of the nerves of special sense, hyperæsthesia and anæsthesia, local or general, coldness of the extremities, twitchings of muscles—all these and other results of the functional nervous disorders we are considering manifest themselves in spinal congestion, in ataxy, in muscular atrophy; but in functional troubles they come and go, and change about and alternate, appear and disappear, and reappear without any clear cause, and sometimes utterly vanish even without treatment; in the nervously exhausted these symptoms fly about from one part or organ to another, as from the head to the stomach or back, from the upper to the lower part of the spine, from the front to the back of the head; one day it is the eyes that are troubled; another day the eyes are well and the stomach is complaining, as though it would never cease; but, in a few hours perhaps, the digestion seems to be all right, and the head is in suffering, and so through the whole system. The wonderful precision that ophthalmology has attained enables us to study the neurasthenic symptoms of the eye, negatively at least, in a most interesting way. To those cases of weakness of the eyes with pain on reading or sewing, where all the tests fail to discover any objective cause, and which are not benefited by glasses, I have applied the term neurasthenic asthenopia. My friend Dr. Roosa lately called my attention to the fact that in testing the visual power of patients it is sometimes observed that there is a momentary capacity for perfect sight that appears and disappears. These vanishings of func-

tional power are also observed, according to Dr. Roosa, while testing the hearing. After an organic malady once gets established, it reveals itself by a group of symptoms that, however much they may vary in intensity, are mostly *fixed and constant.*

2. *There are certain, though not well known or always recognized, symptoms of neurasthenia and allied states which do not often, if at all, appear in structural disorders.*—Among this class of symptoms that are more or less peculiar to functional nervous disease are these: general or local itching (without apparent cutaneous disease), tenderness of the teeth and gums, flushing and fidgetiness, markedly tremulous pulse without cardiac disease, new and special idiosyncrasies in regard to food and medicine, and which did not exist prior to the illness, ticklishness, morbid desire for stimulants and narcotics, morbid fear, as agoraphobia, astrophobia, and anthropophobia, or fear of society. If some of these symptoms do appear in real, organic disease, it is yet rare that all, or indeed, any considerable number of them would appear together in any one case: some symptoms, as sick headache, for example, are generally inconsistent with grave structural disease of the nerve centres; when the brain or spinal cord becomes seriously injured, our sick headaches are apt to leave us. Likewise, the lack of desire for fluids which is seen in neurasthenia is not, as a rule, so noticeable a symptom in structural maladies.

3. *In organic disease, reflex activity is generally diminished; in functional disease reflex activity is generally increased.*—This distinction is of great practical service, since not a few of the phenomena referred to in neurasthenia and allied states are either excited by reflex action, or tend to excite by reflex action symptoms in various parts of the body. The human body in health is a bundle of reflex actions; every organ, when disturbed or irritated in any way, may set up a disturbance or irritation in some distant part or organ; but, when the system is in a condition of neurasthenia, this reflex irritability is often exaggerated—indeed, is usually so; and in case of hysteria the sensitiveness is sometimes so great that the slightest touch on any part of the body, or even the gentlest possible psychical irritation or excitement, may give rise

to violent convulsions. To a less degree than in pronounced hysteria, this exaltation of reflex activity is observed in all types and phases of functional nervous disorder.

When any part or point of the body, external or internal, on the periphery, or at the center, is irritated, some other part is liable to be in some way changed for the better or worse; but there are *par excellence* three great centers of reflex action—the *brain*, the *stomach* and *digestive apparatus*, and the *genital* or *reproductive* system. When any one of these three reflex centers is irritated by over-use or direct abuse, the injury is likely to radiate or reverberate in any or in all directions; we can not tell just where, any more than we can tell where lightning will strike. In this way, disease may be excited in parts quite distant from the seat of irritation. This accounts, in part, for the immense number and variety of symptoms and abnormal sensations from which the nervously exhausted suffer. Hence it is that it is so difficult to tell from the symptoms, or the locality of the symptoms, just *where* the disease or the source of the disease really is. If a man thinks and worries too much, it is not necessarily the head that will complain; there may be pain in the calf of the leg, or in the eyes, or in the stomach or bowels, or in any part of the back; possibly the arms will ache, or the fingers; or the genital organs will become cold. Very often cold feet and hands are the first signs of mental overwork. Indigestion, however complicated, or by whatsoever causes produced, may affect every part of the body except the stomach, and in ways beyond computation. General aching of the bones, pains in the calf of the leg, creeping chills on the spine, actual pain in the back and back of the head, facial neuralgia, sick headache, roaring in the head, flushing of the face and eyes, pain in the vertex, cardiac palpitation, diarrhœa: these are some of the results of indigestion in nervous constitutions; and very frequently patients chase up one symptom after another until they get wearied, without either finding relief or suspecting the true seat of the disorder.

Disorders of the genital apparatus in either sex are continually exciting disease in remote organs; and it is observed that as in women mild irritation—slight and limited disturbance

—produces severer reflex trouble than coarse and grave lesions. In females, superficial disorder of the cervix, for example, often induces more annoying pains and distresses in the head than incurable cancers; and in men, also, but a little prostatitis or urethral preputial irritation is constantly the sole and demonstrable origin of hypochondriasis, dyspepsia, even of paralysis and epilepsy.* In the neurasthenic one never can tell from the locality of the pain or other symptom where the disease really is.

Now, while in certain organic affections—as, for example, spasmodic spinal paralysis—reflex activity of a certain kind may be increased, yet, as a law, the reverse appears.

4. *Neurasthenia and allied troubles are most likely to*

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* In regard to the relation of neurasthenia to the genital function, and to disease of the male and female reproductive organs, two errors have prevailed: that the genital organs have nothing to do with the causation of neurasthenia and allied affections, and that they are the exclusive causes of such affections.

An eminent neurologist once remarked to me that, in all the cases of spinal irritation and analogous disorders that he saw, the uterus was primarily at fault; on the other hand, an eminent gynæcologist, speaking of the same subject, observed that he saw cases of neurasthenia where there was no proof of any dependence on uterine disease. The gynæcologist was right, for, while many cases of neurasthenia do take their origin in uterine and ovarian maladies, there are also many that have nothing to do with the reproductive system; they are as likely to be the causes as the effects of uterine disturbances. This was substantially the view taken by Dr. Goodell, in his paper on neurasthenia, at the late meeting of the American Gynæcological Society, and it was not, so far as I can learn, disputed by any of the authorities in gynæcology who listened to it. There is in fact a manifest disposition among gynæcologists to revive, in a certain measure, the constitutional treatment of some of the cases that come under their care, and so far this is right. Without dispute, also, there are some cases of neurasthenia, as of hysteria and insanity, that depend entirely on genital irritation, and would never have existed but for such irritation, and entirely recover with the removal of the irritation; there are others that depend in part on irritation from this source; there are others that arise entirely independently of all irritation of that kind. There is no doubt that irritation, congestion, and imprisonment of the ovaries, and uterine displacements, often excite neurasthenic symptoms. To attempt, however, to explain *all* forms and phases of neurasthenia by reference to the reproductive system in man or woman, is to study neuro-pathology in a partial, fractional, one-sided, fragmentary, imperfect manner.

occur in those in whom the nervous diathesis predominates.—Among the chief signs of the nervous diathesis are fine soft skin, fine hair, delicately-cut features, and tapering extremities. Those who exhibit these characteristics are the victims of *functional* as distinguished from organic diseases of the nervous system. With exceptions both ways, this general law will be a good guide in establishing a diagnosis.

As a rule, the structural diseases are found in the comparatively strong—in those who are not especially sensitive, or nervous, or delicate; and when paralysis or other grave symptom appears in one in whom the nervous diathesis strongly predominates, it is far safer to make a diagnosis of a functional and temporary disease, and to predict in time entire or approximate relief.

Distinguished from Hypochondriasis or Pathophobia.—From hypochondriasis or pathophobia neurasthenia is distinguished, first of all, by the fact that hypochondriasis may occur in those who are in all other respects except apprehension of disease perfectly well. A man affected with simple hypochondriasis, if he be but diverted by change of scene and environment, may almost instantly exhibit complete vigor of brain and muscle; as soon as his thoughts are taken from himself and turned upon outward duties, he is at once equal to all his tasks. With the neurasthenic patient this is never the case; mental diversion may assist the cure, but can not accomplish it suddenly, or usually without assistance.

Neurasthenia may be complicated with hypochondriasis, as it may be complicated with hysteria; but, in the majority of cases, neurasthenic patients are not specially hypochondriacal, although often so regarded by their friends; their symptoms are as real as those of yellow fever or the poisoning of malaria.

It may be added to the above that both hysteria and hypochondriasis are diseases hundreds and thousands of years old, and are evidently decreasing, while neurasthenia is a modern disease, and is as evidently increasing.

Distinguished from Cerebral and Spinal Anæmias and Hyperæmias.—In regard to the relation of neurasthenia to spinal and cerebral anæmia and hyperæmia, it may be said that circulatory disturbances of various kinds and in varied degrees must of necessity arise as results of exhaustion of the nerve centers; and it must also be allowed that when the brain or spine is engorged with blood, or greatly deficient in blood, then certain symptoms are likely to follow from such local plethora or anæmia, just as dyspepsia when once excited becomes the center, directly or reflexly, of numerous morbid phenomena; but the anæmia, the hyperæmia, the spinal or cerebral irritation, like the dyspepsia and insomnia, when broadly and philosophically studied, are branches of a tree, the trunk of which is impoverishment of nerve force; and, in all these neurasthenic states, over-exertion or mental excitement is liable at any time to bring on engorgements of blood in the spine or brain; there may be rushes of blood to the head or spinal cord, which when they occur become the centers of symptoms of their own; but to call these rushes of blood, these flushings of the face, the disease is to mistake effects for causes.

The results of treatment demonstrate this in a most interesting way, both positively and negatively; thus you shall cure a spinal irritation * without curing or even permanently relieving the patient, for the neurasthenia remains, and is

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* On this point Erb remarks as follows: "It can not be denied that this complaint has a close resemblance in many respects to spinal irritation . . . . and the opinion might perhaps be defended that this disease is essentially, for the male sex, that which corresponds with spinal irritation in females."

He does not, however, regard the diseases as identical, and says: "It would be very desirable to lay out a better division and classification of these spinal neuroses, by means of accurate classical and symptomatic study, in order to promote the pathology of such an obscure subject."

"The distinction from spinal irritation will often be less easy to make. . . . It must be admitted that there are cases of ambiguous signification which stand, as it were, half way between the two forms of disease, and possess somewhat of each."

In science the next best thing to knowing is to know that we do not know. This is Erb's position in respect to the relation of the symptom spinal irritation to neurasthenia. He does not solve the problem; but he clearly appreciates, as very few writers have done, the need of a solution; and he sees precisely where the confusion lies, and just what position science should attack.

liable to break out any time in the same form, or in any one of a number of forms, such as cerebral irritation, or insomnia, or nervous dyspepsia. The symptom of spinal irritation is indeed one of the easiest symptoms to cure; a few days or weeks at most may be sufficient to drive away all the tenderness, while the condition on which it depends, and of which it is really a part, may require months of treatment, or in some cases may be absolutely incurable. On the other hand, all influences that tend to build up the constitution—a change to country air or travel—will often cure all these symptoms without any special treatment of the symptoms of anæmia and hyperæmia. That there may be such states as cerebral anæmia, cerebral hyperæmia, cerebral congestion, spinal anæmia, spinal hyperæmia, and spinal congestion is undeniable; and these terms are in some cases properly used. Such circulatory disturbances of the nerve centers, when they exist as the chief, if not only, factor in the morbid process, and the cure of these disturbances is a cure of the patient, may properly be called diseases; but in neurasthenia these circulatory irregularities in the brain and spinal cord are but incidents and results; their removal leaves the sufferer still a sufferer.

The whole set of modern science is indeed now in favor of the view that I presented ten years ago, that innervation precedes circulation: that the waves of blood into the nerve centers or out of the nerve centers move in obedience to the nerve force, as the sea rises and falls under the law of gravity.

Most strikingly this view is brought out in Vulpian's researches in the physiology of sleep, according to which it seems to be made quite clear that our anæmia theory and our hyperæmia theory, that, by alternation or in unison, have held the world so long, must give way to the nutrition theory; it is possible that we may be all wrong, as it is certain that we do not yet understand the full mystery of cell nutrition, but just now it is the growing if not the dominant philosophy in all neurological circles.*

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* Erb's idea of the nature of the disease is similar: thus, after mentioning the anæmic and hyperæmic theories, and admitting them to be unsatisfactory, he says: "It seems most natural to recur to fine *disturbances of nutrition* in the cord, such as we are still obliged to assume in so many diseases of the nervous system."

Malarial poisoning frequently simulates neurasthenia, and also induces a special type of the disease which may be called *malarial neurasthenia.* Like malaria also, neurasthenia affects and modifies nearly every other disease that the patient contracts, giving a nervous and asthenic character to the symptoms, just as malaria makes other maladies periodic.

Distinguished from Anæmia.—It used to be claimed—and by some it is claimed even now—that neurasthenia is but another term for anæmia, in other words that impoverishment of blood and impoverishment of nerve force are identical. The basis of this confusion of ideas is probably the fact that the blood can be seen, felt, measured, and analyzed, while nerve force can only be studied through its manifestations.

The two conditions have oftentimes certain symptoms in common, just as functional and organic nerve diseases have certain symptoms in common; but, in the one case as in the other, there is a radical and inherent distinction—a distinction that modifies not only our abstract conception of the disease, but our prognosis, our hygiene, and our therapeutics. Just as a case of organic nerve disease treated as functional is sure to disappoint us, and perhaps injure more than help the sufferer, so a case of neurasthenia treated and managed as a case of anæmia is likely to become—as so many of such cases do become—the opprobrium of our art.

The chief points in the differential diagnosis of neurasthenia and anæmia are presented in the following table:

Neurasthenia.	*Anæmia.*
Chiefly found in nervous diathesis.	Appears also in the tuberculous, or rheumatic, or other diathesis.
Impoverishment of nervous system; *no necessary anæmia. Patient may be plethoric.*	Impoverishment of the blood; increase of water, and diminution of red corpuscles.
Found chiefly between the ages of fifteen and sixty.	Found in all periods of life, from extreme infancy to old age.
Not at all necessarily dependent on any important recognizable organic disease.	More frequently, though not necessarily, associated with some organic disease, as tuberculosis, carcinoma, morbus Brightii, etc.
Pulse may be full or normal, usually regular, but sometimes very rapid or very slow.	Pulse small, weak, and compressible.

Neurasthenia.	*Anæmia.*
No cardiac murmurs.	Murmurs at the base of the heart and over the large arteries, as the carotid, subclavian, etc. "Venous hum" in the neck.
No pallor—sometimes even a rubicund appearance.	Very perceptible pallor of the face, especially of the lips.
Easily fatigued by exertion; *mental* labor in *cerebrasthenia* more exhausting than *physical*. Memory often temporarily weakened, and consecutive thought and sustained mental activity frequently impossible, *even when prolonged muscular labor causes little or no fatigue.*	Easily fatigued by exertion. *Physical* labor always more exhausting than *mental*.
Insomnia a very frequent complication.	Insomnia not so frequent a complication, frequently an abnormal tendency to sleep by day as well as by night.
No necessary or constant disturbance of the circulation.	Disturbance of the circulation, with habitually cold extremities.
Habitual mental depression.	Mental depression not so frequent.
Though common to both sexes, not so relatively frequent in females.	Far more frequent in females.
Is benefited by remedies that directly affect the nervous system, such as electricity, phosphorus, strychnine, zinc, and oil, while iron alone is of little service.	Is benefited by remedies such as iron, that directly affect the blood.
Usually recovers but *gradually*, and under the influence of rest, nutritious food, and various sedatives and tonics.	May be *rapidly* removed by the removal of the organic cause.

Distinguished from Hysteria.—From hysteria, neurasthenia is distinguished in part by the absence of the convulsions or paroxysms that are always regarded as peculiar to the hysterical state.

Neurasthenia, like anæmia, may, it is true, lead to hysteria as it may lead to insanity; but hysteria, when it appears, is with all its group of symptoms, including the hysterical convulsions or paroxysms and the *globus hystericus*, or feeling as of a ball in the throat, quite a distinct condition. In hysteria there are to some of the symptoms, besides the paroxysms, an acuteness, violence, activity, and severity that do not belong to simple neurasthenia.

Hysteria is found usually in those whose emotional natures greatly predominate. Hence, relatively to neurasthenia, it is far more common in females than in males. Indeed, hysteria was once supposed to be exclusively a disease of women; hence its name. Neurasthenia, on the other hand, although more frequent in women, is yet found in great abundance in both sexes, and in both men and women of intellect, education, and well-balanced mental organizations.

Hysteria of the mental or physical form may occur in those who are in perfect physical health, without any of the symptoms of neurasthenia or of anæmia; those of the strongest possible constitutions are the victims of this type of hysteria, the subjective psychological cause of which is an excess of emotion over intellect, acted upon by any influence that tends to produce emotional excitation. This form of hysteria is found in the stout Irish servant girls, among the Southern negroes, and among the undisciplined and weak-minded of all races and classes and ages, and, unlike neurasthenia, was more prevalent in the middle ages than in the nineteenth century.

Lastly, hysteria, whether of the mental or physical type, or of both types combined, may, and often does, completely recover suddenly, and may disappear under purely subjective or mental treatment. Neurasthenia never recovers suddenly, but usually requires much time, whatever treatment may be employed; and, though like all other morbid states it can be powerfully influenced by mental therapeutics, yet demands usually positive and varied objective treatment.

The differences between neurasthenia and hysteria appear more distinctive when tabulated side by side, as follows:

Neurasthenia.	*Hysteria.*
No convulsions or paroxysms.	Hysterical convulsions or paroxysms.
No *globus hystericus*, no anæsthesia of the epiglottis, ovarian tenderness less common, and attacks of anæsthesia far less frequent and *less permanent.*	*Globus hystericus*, anæsthesia of the epiglottis, ovarian tenderness, and attacks of general or local anæsthesia.
Symptoms more moderate, quiet, subdued, passive.	Symptoms acute, intense, violent, positive.
May occur in well-balanced, intellectual organizations.	Usually associated with great emotional activity and unbalanced mental organization.
Very common in males, though more common in females.	Very rare in males.

Neurasthenia.	*Hysteria.*
Is always associated with physical debility.	In the *mental* or physical form occurs in those who are in perfect physical health.
Never recovers suddenly, but always gradually, and under the combined influences of hygiene and objective treatment.	May recover suddenly, and under purely emotional treatment.

Syphilis sometimes simulates neurasthenia; the irregularity of many of its phenomena, such as sudden loss of power of one limb or of several limbs—coming and going—tingling and numbness in the extremities, cramp and twitchings of the muscles, especially at night, disturbances of the special senses, transient and curable impotence—all suggest neurasthenia, and of themselves alone are not sufficient to enable us to make out a diagnosis of syphilis. The syphilitic origin of such symptoms is established by these four considerations:

1. The history of the case.
2. Other symptoms of syphilis.
3. The temperament of the patient. Other factors being equal, the nervous diathesis would give a probability of neurasthenia, although nervous syphilis does appear in the nervous and sensitive.
4. The results of anti-syphilitic treatment. This is the conventional mode of making a diagnosis in suspected syphilis; but in the question under consideration it is not necessary to resort to it.

Syphilis may simulate not only neurasthenia but even absolute hysteria. I have known a syphilitic patient to go rapidly through a series of hysterical phenomena—transient paralyses, flying all about the body; one hour aphasia, another paralysis of the arm or leg, or aphonia, and so forth. Dr. Althaus, of London, reports similar experiences.

Neurasthenia sometimes simulates in a perfect and most interesting way the symptoms of a common cold—the chilliness, the positive coldness, the tremor, the heaviness and soreness of the back, bones, and limbs, and in some cases excessive secretion from the eyes and nostrils, all may exist together in a neurasthenic sufferer, and in some cases only time can determine whether a cold has been taken or not.

Neurasthenia also may simulate rheumatism, and is frequently mistaken for it. Thus the stiffness of the neck when the upper portion of the spine is in an irritable condition, or of the loins and lumbar region when the lower part of the cord is irritated, at once suggests rheumatism.

Differential Diagnosis of Cerebrasthenia and Myelasthenia.—Both for the hygiene and the therapeutics of neurasthenia, it is necessary to be able to make a proper differential diagnosis between *cerebrasthenia* (exhaustion of the brain) and *myelasthenia* (exhaustion of the cord). In my original paper no such distinction was attempted. The symptoms that suggest *cerebrasthenia* are obviously those that are directly or indirectly connected with the head, and they may be either physical or psychical. Tenderness of the scalp, a feeling of fullness in the ears and head, all disorders of the special senses, tenderness of gums, deficient thirst, morbid desire for stimulants and narcotics, gaping, yawning, rushes of blood to head, congestion of conjunctiva, the different forms of morbid fear, mental depression and impairment of memory and intellectual control, all indicate that the brain is chiefly affected. Certain symptoms, however, as external tenderness of the scalp, general or local itching, clamminess of the extremities, muscæ volitantes, pain and heaviness in the back of the head, may arise from exhaustion of the upper part of the spine. The symptoms that suggest *myelasthenia* or spinal exhaustion are local spasms of muscles, local chills and flashes of heat, shooting pains in the limbs, startings on falling to sleep, morbid sensations at the bottoms of the feet, as of burning or tenderness, vague pains in the feet, podalgia, sexual debility in its various phases, pain in the back—any part of it from the nape of the neck to the tip of the coccyx with or without the accompaniment of spinal irritation—creeping and crawling sensations up and down the spine, incontinence of urine or paresis of the bladder, feeling of pressure in the chest with or without ticklishness in that region, heaviness and stiffness of the muscles simulating rheumatism, sensitiveness to cold and changes in the weather, hypæresthesia of mucous membrane, dryness of skin or morbid perspiration, dryness of the joints, and dilated pupils.

Some other symptoms, as nervous dyspepsia, constipation, flatulence, sick headache in all its forms, numbness and hyperæsthesia, and insomnia, appear to be common to both states, since they manifest themselves when either cerebrasthenia or myelasthenia is uppermost.

No other single fact so much aids us in making out the differential diagnosis as this, that in myelasthenia physical exercise, especially walking and standing, but oftentimes any form of muscular exertion requiring either the upper or the lower limbs, is fatiguing and disagreeable, and when kept up is liable to make the patient worse and interfere with the treatment. In cerebrasthenia, on the other hand, severe, and violent, and long kept up muscular exertion can be well borne, and is frequently desired and sought for; indeed, with such patients this desire for physical effort and activity sometimes becomes a morbid symptom, and demands restraint. Those whose brains are diseased even to the border land of insanity can, in some instances, do far more physically, with far less fatigue than when in their usual health.

Whence I derive this practical rule for the differential treatment of cerebral and spinal exhaustion—namely, that in *cerebral exhaustion* (*cerebrasthenia*) *active muscular exercise in reasonable amount and variety may be allowed and enjoined*; in spinal exhaustion (*myelasthenia*) *relative and in some cases absolute rest is demanded or only passive exercise for a shorter or longer time, as may be, according to the special peculiarities of the individual.*

A neglect of this cardinal distinction, a want of knowledge of the differential symptoms of nervous exhaustion chiefly centered in the brain, and nervous exhaustion chiefly centered in the spine, is the constant source of errors in the advice given to patients by physicians, and in the regimen that patients prescribe for themselves.

Cerebrasthenia and myelasthenia are sometimes combined, and not unfrequently alternate with each other. These facts yet further complicate both the diagnosis and treatment; at one stage of neurasthenia a patient may be able to take larger amounts of muscular exercise; at another stage—separated, it may be, by not more than a few days or weeks—all muscular activity is irksome and injurious, and, if persisted in, may do harm. Hence it follows that patients must be watched and studied by the physician so that the hygiene may, to a certain extent, be varied with the different phases of the disease.

To indiscriminatingly advise such patients to work furiously in the open air as is so often done, or to advise them to go to bed and keep in bed, as is also done—to the extent of confining them in a dark room—is likewise unscientific, and may do mischief; indeed, as practiced years ago the dark-room treatment certainly did not a little evil; it was an empirical employment of a really good therapeutic measure. There are cases of neurasthenia where confinement to bed is the very best possible treatment; there are cases when it is the very worst possible treatment.

In regard to the probable pathology of neurasthenia, my view, as expressed in my first paper on the subject, is that there is an impoverishment of the nerve force resulting from bad nutrition of the nerve tissue on the metamorphosis of which the evolution of nerve force depends; as in anæmia there may be a deficiency in quantity or impairment of quality of the blood, so in neurasthenia there is, without question, deficiency in quantity or impairment in quality of the nerve tissues; hence the exhaustion, the positive pain, the unsteadiness, the fluctuating character of the morbid sensations and phenomena to which the term neurasthenia is applied.

Dr. Salisbury, of Cleveland, claims to be able to diagnosticate a seriously exhausted condition of the nervous system by the changed appearance of the blood corpuscles, his theory being that the red corpuscles are carriers of substances that feed the nerves, and he asserts that when these corpuscles are not properly laden with this food for the nerves, as in the case of nerve exhaustion and insanity, the corpuscles exhibit changes that the microscope can recognize; hence an addition to our means of diagnosticating nerve impoverishment. Dr. Heintzmann, of New York, claims to be able to determine, by examination of the blood under the microscope, whether the constitution is good or bad, and even to tell whether the subject is specially exhausted at the time of the examination—as, for example, after a sleepless night.

Both of these claims are yet on their trial before the profession, and can not be regarded as parts of science, until they have been endorsed by a considerable number of experts of admitted authority, and also made verifiable by others who shall make themselves experts; for this is the gantlet that all claims must pass before they are permanently received into the fold of science.

If either or both of these claims, or some similar claim, shall stand the cruel test of time and expert skill, we shall have a positive, so far as it may go, satisfactory addition to our means of studying functional disorders of the nervous system, and a very interesting ocular and physical proof of the general position that I have here taken.

If it be objected, as indeed it often has been—and by those for whose judgment I have the highest respect—that while the general philosophy and analysis of these nerve symptoms are sound and verifiable, yet that the term neurasthenia is faulty in that it indicates only a state or manifestation, instead of a precise pathological lesion, I can only reply, as I have done from the first, that nearly all our medical terminology expresses our ignorance more than our knowledge; that our best known diseases, as epilepsy, insanity, chorea, hysteria, hay fever, writer's cramp, musician's cramp, telegrapher's cramp, and nearly all our paralyses and neuralgias, receive their names from single and striking symptoms or suspected factors in their causation, which terms we must yet retain despite all our actual or prospective progress in neuropathology; and there is no objection to the use of these terms, provided we understand their meaning; indeed their retention is a matter of necessity till such time as the minute pathology of these phenomena shall be unveiled. Then they can be and will be gradually abandoned.

Some of these cases under proper and persevering treatment seem to acquire a new constitution. Very many of these cases of neurasthenia I have watched not only while under treatment but for months and years; I see every week, indeed almost every day, cases that I treated all the way from five to ten years and more ago, and can testify that the results are often permanent; they may be sensitive, delicate perhaps, but they are well, in working order, and in no need of special medical aid. Erb says, in the work above quoted, that he has not seen his cases long enough to be able to pronounce an opinion in regard to the general prognosis; after he has studied the subject and watched the patients a number of years he will, I have no doubt, be able to confirm substantially these observations, for although neurasthenia is far more common in this country than in Germany, yet the disease, when it exists, is in all respects precisely the same. Some cases never get absolutely well; they always have reminders of their disorder: certain symptoms now and then recur, although not in sufficient force to demand special attention or to interfere with fair working capacity and great longevity.

I have lately dismissed very much benefited a case of neurasthenia in a gentleman from New Orleans—a section, where, by the way, diseases of this kind, and, indeed, all the neuroses of this family, are far more rare than in the North. In this case the condition was clearly the effect of over-exertion and anxiety, in attendance on and nursing several of his young children who were sick with yellow fever during the late epidemic.

The patient was of a slight frame, of a nervo-bilious temperament, but usually well, and able to fulfill without interruption his duties as a merchant.

His first prominent symptom was a temporary paralysis of one arm; this came on shortly after the subsidence of the excitement, but lasted only a short time. About this time also considerable loss of flesh was noticed, and physical debility.

By advice of his family physician, Dr. Axson, he consulted me when he arrived at New York, about the third week in November, and reported that he had been visiting in Maryland, in the country, and had rallied so rapidly that he supposed he was nearly well, and, presuming too much on his apparent improvement, he had walked up a steep hill at Harper's Ferry, and thereby brought on a quick relapse with the addition of new symptoms.

Dr. Axson, who had made a correct diagnosis of the case, had expressed the hope that rest and travel would be sufficient to work a cure; but this set-back not a little disheartened the patient, and he came to me in a state of considerable depression, and presenting the following symptoms:

1. Pain in the lower part of the back, extending over the hips. This was always worse on walking or standing.
2. Wakefulness; insufficient sleep and excess of dreams.
3. Want of appetite, furred tongue.
4. Attacks of paresis or powerlessness in the arms, never amounting to actual paralysis.
5. Muscular debility; a walk of a quarter of a mile bringing on pain in the back and a feeling of exhaustion, going up stairs being the most exhausting of all forms of exercise.
6. Nervo-febrile attacks, particularly in the morning, on awaking, but in the day also; the symptoms being a feeling of heat with burning.
7. Slow and feeble pulse, between fifty and sixty.
8. Uric acid and oxalates in great abundance; also spermatozoa and spermatic-globules, with very acid reaction. (Examination made by Dr. Mittendorf.)
9. Vertigo, with feeling of heat in the head at times.
10. Cervico-occipital neuralgia, and a dull heavy pain at the back of the head and neck.

None of these indicate any structural or organic disorder; they were results of neurasthenia concentrated part of the time in the spine and part of the time in the brain, as the symptoms, history, and results of treatment proved.

This case might have been variously diagnosticated; it would have been called oxaluria, or spinal congestion, or cerebral hyperæmia, or cerebral anæmia, or simple anæmia—for he was somewhat anæmic—or dyspepsia, and there would have been a degree of truth in any one or all of these diagnoses; but not one nor all combined would have correctly described the real condition at the foundation of all these myriad symptoms.

From a careful study of the case and from the effects of treatment, I convinced myself that a part of the time there was excess of blood in the brain; but even on that point I am open to further and more definite facts; nor would I regard the physical demonstration of transient cerebral engorgement as giving us much aid in determining the nature of the disease.

Erb reports in detail one case, which, he says, is a type of more than two dozen that he has seen. It is interesting to see that in many respects the description will apply to the cases that are observed in this country, where the disease is far more common than in Germany; indeed, the description reads as though it were taken from my own note-book, and represents a combination of cerebrasthenia and myelasthenia, the latter being far more prominent. I have seen at least two hundred similar cases; they are found in both sexes; but this special type appears to be most common among males, and is not always though frequently associated with symptoms and history that point to the genital function.

The patient, a wholesale merchant aged thirty-five, belongs to a *neuropathic family;* his sisters were in the insane asylum; a brother has a tendency to melancholy and nervous complaints; he himself has been a long time nervous. Married at twenty-three; he has three children, says that he *indulged a good deal in the sexual* act, perhaps too much, but never observed any ill results from it. He has often been to baths in the ocean, with temporary benefit. He has a *great deal of work;* at least eight hours a day in his office, occasionally going into a close, damp warehouse. All the nervous symptoms have *slowly* increased; they have been about as follows for four weeks past: *Great general sense of fatigue*—this is very marked in the *morning* in *bed; inability to walk for a long* time, or, if he does it, it is *followed by great fatigue* and actual *tremor* in the legs.

When moderate exertion of an *unwonted* sort is made there are *severe muscular pains* on the *following* day, as lately, after skating for fifteen minutes; no tottering or uncertainty in gait; *vertigo;* some *sense of fatigue* in the *arms, uncertainty* in writing; no pain, no numbness, or formication in legs or arms. No headache; only frequent sense *of pressure on the vertex. Intelligence* and *memory good; depressed, hypochondriacal* state of feeling. Occasionally *disagreeable feeling* in the *back,* but *no real pain;* suffers much from *cold feet,* which formerly was never the case; *great sensitiveness* to cold; *after exposure* feels *slight shooting pains* in the limbs; *sleeps badly;* usually wakes about three o'clock, and remains awake for two or three hours, with *great prostration and restlessness of limbs.*

Vesical functions quite normal, *sexual function distinctly altered* in the last few weeks; sexual *excitability increased*, *ejaculation too early*, *erection insufficient;* after coitus a *sense of exhaustion*, with *excitement* and *restlessness.*

Tendency to shed tears; unusual *timidity* and *want* of *self-possession;* noticeable *confusion* when he is conscious of being observed. Frequent *palpitation*, and some *shortness* of breath when he ascends stairs.

Appetite and stools good.

Objective symptoms. An *apparently strong* and *well-nourished* man; internal organs sound, motility quite normal to objective tests. Stands with closed eyes very well, no disturbance of sensibility. Cerebral nerves all normal. *Slight anæmia.*

After various medical and hygienic treatment he was so far improved that Erb could report as follows:

He was considerably improved. The strength and endurance of the legs are decidedly greater, and his temper is much more cheerful. He walks four or five hours every day, and seldom suffers from tremor, still less from pain in the muscles. He has no cold feet, and his sensitiveness to cold is less. He sleeps much better, though not perfectly well; sexual functions the least improved of all. Head never troubles him. Temper much improved; he has no disposition to weep. After another half year the greater part of the morbid symptoms had disappeared.

In the original, or rather in Dr. Lincoln's translation, from which this is taken, certain words and phrases are italicized; these italics are not retained in this copy, but I have preferred to emphasize those facts that, from the present point of view, seem to be of most importance, especially as relating to the philosophy taught in this essay. In regard to the case it may be observed:

1. This patient inherited the nervous diathesis, which is often true of these cases.

2. Overwork, with confinement, was pretty clearly the *first* great exciting cause. The same sexual excess in a person not inheriting the nervous diathesis would probably have not produced these symptoms. There are very few persons in this world who do not at times indulge excessively in the sexual act.

3. All the symptoms, or nearly all, point to the spine as the chief center of the exhaustion. It was a case of *myelasthenia*. Many symptoms that belong to these cases either did not exist in this patient or were not observed.

4. Exertion of an "*unwonted* sort" was especially fatiguing. This is an interesting fact in the history of these cases. Sometimes severe relapses are caused by undertaking unfamiliar tasks.

5. Many of the symptoms of ataxy without ataxy. A few years ago all the German writers on neurology were accustomed to report these cases as ataxic cases cured; and the whole world has been thereby misled, and false hopes have been raised with subsequent disappointment.

ART. II.—*On the Elective Action and Small Doses of Medicines, with Illustrative Cases.* By THOMAS J. MAYS, M. D., Upper Lehigh, Pennsylvania.

I HAVE elsewhere * pointed out that our therapeutic agents are the embodiment of forces; that when viewed from the standpoint of life they naturally divide into two great classes, viz., those which move in harmony, and those which move in discord with the vital forces; that those which move in such harmony tend to enhance the bodily forces, and that those which move in discord can be so regulated as either to promote or depress bodily activity. I have further shown in the same place that those forces which even move in concord with the bodily forces under certain circumstances will also under other conditions move adversely to the latter; but, since this paper is to be strictly devoted to a discussion of that class of therapeutic agents which are at constant warfare with the vital forces, these will receive no further special attention. By way of parenthesis I will here add that much of the preliminary matter in this article is a repetition of what I discussed in my work, to which reference has been already made.

Thus, "when two forces of equal strength meet each other from opposite directions, rest is produced, but an attacking force of comparative moderate strength will disturb the equilibrium of a force of somewhat less resistance, and cause it to move in a direction parallel to its own, to such a point where a mutual balance occurs. And although the latter tends to rebound and assume its former position, yet, by a series of such impactions, it will be forced to seek a new equilibrium in which it will remain after the attacking force has ceased to act. This phenomenon is well illustrated by the gentle gale blowing over a field of tall grain, disturbing the latter and giving to it a wave-like motion; and it is well known that a steady and continuous breeze in one direction will often cause the grain to lean in that direction, and to remain that way for some time after the disturbing force has ceased to operate. Again, it is also well known that a wind or breeze from an opposite direction will have the effect of rendering the grass straight again. But it is also true, on the other hand, that an attacking force of great strength will ultimately overthrow the resisting force altogether—this latter result varying in proportion to the relative strength of the two forces. This portion of the principle is well exemplified in the case of a cyclone or violent storm blowing across a forest. If the force of the wind is sufficiently powerful, every tree, however strong, will have to go down before it; if it is more moderate in strength the weaker only succumb, while the stronger survive."

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* "On the Therapeutic Forces," Lindsay & Blakiston.

The operation of this law of antagonism is well witnessed in the different effects of friction on the body. "When, for example, slight and gentle friction is applied to the body, the molecular activity of that part is immediately aroused to its utmost physiological capacity; and this procedure, as is well known, is a powerful adjuvant in the treatment of disease. But when the friction is carried to excess, as it sometimes is in the case of the palmar surfaces of the laborer's hands, where large blisters sometimes form in consequence of the handling of tools, the process assumes a pathological phase, and can no longer be considered as being within the limits of health. Now, these two widely different phenomena are the result of a process which is exactly the same in kind, differing only in degree. The organic molecular activity is accelerated in both instances; but, since rapidity of molecular motion of the body and health are not synonymous, there naturally must be a point where this activity is pushed over the bounds of health into those of disease." Or, again, take the case of the action of mustard on the body. A transient mustard-plaster will frequently relieve pain and infuse warmth, vigor, and life into the part, but its more protracted application will superinduce violent pain, inflammation, and vesication.

Here we observe, then, that both friction and mustard in their action on the body in small quantities are analogous "to a mild force of wind blowing across a field of tall grass." That they move in a direction contrary to that of, and come in contact with, the weaker molecular forces of the body, and motion necessarily takes place in the line of least resistance, which is in consonance with that of the attacking force, until at such a point where a momentary equilibrium is restored by the action of the bodily forces, after which motion takes place in an opposite direction. By the prolonged action of these forces a series of such oscillations or waves are produced, and in this way the bodily molecules are impelled to their former state of energy and activity; they thus acquire an additional amount of strength, which will remain even after the attacking force has subsided. But it will be observed that protracted and concentrated application of friction and of mustard will not only not infuse healthful activity, but, on the contrary, produce disease and death; and hence their operations under such conditions can be compared to the fierce wind or storm blowing across the forest producing ruin and devastation on every hand.

Thus, then, I hold that we can no longer regard our therapeutic agents as capable of producing only a single resultant; but that, like friction and mustard, they are all representatives of force which give rise to results in accordance with their quantity, and the circumstances under which they act.

The fact that cathartics, emetics, etc., manifest a preference of action on special tissues of the body is too obvious to be disputed, but I think we also have reason for believing that most, if not all, of our therapeutic agents possess this peculiar and specific acting power in a similar degree; and I have in the work above quoted expressed my faith that, if we look upon our medicinal agents as the embodiment of forces, the question of the elective affinity of medicines becomes materially simplified, and crystallizes into a well-grounded theory.

The remainder of this paper shall now be devoted to a demonstration of the evidence for such a faith.

It is a fundamental law in nature that when two forces move in a similar direction they will enhance each other's movement and effects, and will cause them to move in the same channel. I think this phenomenon is nowhere more clearly and beautifully illustrated than it is in the domain of acoustics. A violinist, for example, in drawing his bow across any string on his instrument, can at the same time throw into vibration the corresponding string of a piano, while all the rest of the strings remain quiet and unaffected. This is called sympathetic vibration, but the reason why only one wire is thrown into vibration and the others remain at rest is just this: every string or wire in the piano is so conditioned that it is capable of producing only one rate of vibration, differing in this respect from all the other strings or wires in the instrument. A sound which is produced by a corresponding number of vibrations, although coming in contact with every string in the piano, is only capable of selecting and setting in motion that string the vibrations of which are similar to its own. A series of vibrations impinging themselves on such a string will produce motion in the latter, in obedience to the law that two similar forces moving in the same direction will reënforce each other, and in precisely the same manner as "if two clocks, for example, with pendulums of the same period of vibration, be placed against the same wall, and if one of the clocks is set going and the other not, the ticks of the moving clock, transmitted through the wall, will act on its neighbor. The quiescent pendulum, moved by a single tick, swings through an extremely minute arc, but it returns to the limit of its swing just in time to receive another impulse. By the continuance of this process, the impulses so add themselves together as finally to set the clock a-going. It is by this timing of impulses that a properly pitched voice can cause a glass to ring, and that the sound of an organ can break a particular window pane." *

This, I think, will serve to make clear the action of those

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* Tyndall, "Sound," p. 398.

forces which have a corresponding relation of motion to the forces of the body. But it may be urged by some that while all I have said is perfectly true of the phenomena of sound, and of the laws of the inorganic world in general, yet there are no legitimate grounds on which to stand and apply these principles to physiology, or to organic nature. In defense of my position I can say that, aside of the truth that the operations of the laws of nature are the same everywhere, constantly during our working hours there are occurring vital phenomena which partake of precisely the same nature as those which I use as illustrations. For example, in the human ear there is an organ, discovered by the Marchese Corti, which according to Kölliker contains three thousand strings, and which bears a strong resemblance to a stringed instrument; and, in the opinion of many eminent physiologists and scientists, these pillars or rods of Corti, like the strings of a piano, are only thrown into vibration by those sound-waves which correspond to their own rate of vibration. Similarly with the eye, it is believed that luminous waves are only capable of affecting harmonious anatomical parts of this organ. And, when we say that the force which emanates from the combustion of the hydro-carbonaceous foods maintains muscular motion, we mean that there exists a complete harmony between the nature of such a force as that which is derived from the food and that which the muscular mechanism is capable of receiving and utilizing; or, when a consumptive patient regains his vigor and energy under the use of cod-liver oil, we have similar reasons for believing that this agent embodies a force which harmonizes with the vital forces. And I think we have plentiful evidence on every hand to convince any candid mind that the law of the aggregation of "likes," which has been so ably maintained and advocated by Herbert Spencer in his "First Principles," is universal—holds good for animate as well as inanimate nature.

So it is with a large number of our remedial agents, for there can no longer be any doubt that such therapeutic forces, like fat, alcohol, etc., which, in small quantities, move harmoniously with the bodily forces, thus manifest their elective affinity by a unity of action; but it must be understood that such a principle of harmony does not explain the action of the forces which I propose to discuss in this paper, for all these move more or less antagonistically to the vital forces. Yet it is essential, in order to understand the latter, to properly apprehend the former mode of action.

The integrity of the body can only be maintained by the constant operation of many and diverse forces within itself, each force having its own particular duty to perform. This is precisely what the "physiological division of labor" implies, and an incidental antagonistic force introduced among so many different forces must produce widely varying results—disturbing some, and leaving others altogether untouched. If the bodily forces were all alike, and if the action of such a force were distributed equally throughout the body, they would naturally be all similarly affected. But it is evident that, if other things are equal, such a force will antagonize that force which shows the greatest opposition to it; and, since the bodily forces are unlike, some must offer greater resistance than others, and on those which manifest the greatest opposition the brunt of the blow must fall. Here, again, the laws of sound give us a fitting illustration of this phenomenon. It is well known that two sounds interfere with each other in proportion to the disparity which exists between them—a small difference causes a slight degree of interference or antagonism, and two diametrically opposite and equal sound-waves will annihilate each other and cause perfect silence. Thus, two sounds that differ but slightly in their rate of vibration will interfere with each other to such an extent as to produce the well-known phenomena of increase and decrease of loudness, which are called beats. Or, again, as Professor Tyndall says,* "two [tuning] forks may be so related to each other that one of them shall require a condensation at the place where the other requires a rarefaction; that the one fork shall urge the air-particles forward, while the other urges them backward. If the opposing forces be equal, particles so solicited will move neither backward nor forward, the aërial rest which corresponds to silence being the result. Thus, it is possible, by adding the sound of one fork to that of another, to abolish the sounds of both."

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* "Sound," p. 357.

Thus, then, when a discordant or antagonistic sound-wave meets a number or a body of such waves, its greatest disturbing effect falls on that particular wave with which it has the greatest disagreement or discordance; as, for example, the tone E flat, when produced simultaneously with the chord C E and G, will only interfere with the tone E, while the other two sounds suffer no disturbance whatever, merely because it forms an agreeable relation to those two sounds, and none at all to the tone E. This holds true throughout music, and is only an expression of the universal law that two forces interfere with each other in proportion to their unlikeness.

Now, I do not mean to illustrate by this that, when a therapeutic force antagonizes or interferes with a bodily force, like the wave-sounds, there must be a perfect correspondence in their mode of motion, and thus nicely fit into each other, as it were, but merely this, and this is all my argument requires, that the interference of the therapeutic with the bodily forces depends on the contrariety which occurs between them; that when such an antagonistic force is introduced into the body it is thrown into the midst of a large body of adverse forces with which it bears every shade of difference, and that its elective action falls on that bodily force which offers the greatest contrast to it.

Now, if, as we have seen, friction and mustard in their influence on the animal body can be so regulated as to produce either stimulation or disorganization, or, in other words, to promote health or cause disease in the structures of the body generally, it must also be true, then, that those agents which act on special tracts of tissue, or which counteract special bodily forces, can be so moderated as to yield the same effects on such special parts. In connection with this, it must be understood that, while these agents invariably in large doses disintegrate the bodily forces or structures, the disturbance in the latter manifests itself in varying characteristics, according to the structure affected. For example, those which tend to act on the muscular or more vascular structures will produce inflammation, and others which act on the nervous structures will produce paralysis, etc. Thus, we find that strychnia in large doses paralyzes the spinal cord and its efferent or motor nerves, while in small doses it stimulates these structures. Atropia has the same effect in large doses on the vaso-motor nerves, and in small doses it stimulates these organs to healthy action. Copaiba and cantharides in large doses produce inflammation in different parts of the urinary mucous membrane, while in small doses they are used to combat this same disorder in these textures. So I might go on and multiply instances.

In a part of the body where the molecular activity is below the normal standard, it is an easy matter to conceive of the *modus operandi* of these therapeutic forces by which they accelerate molecular motion, and thus return the part to its healthy and former activity; but, since it is now well known that inflammation is a phenomenon of increased molecular activity itself, the question may here with perfect propriety be asked how it is possible to combat one mode of increased cell or molecular action by generating another! In answering this question, I repeat here almost in substance what I have said elsewhere* on this same subject: "We must always recollect that all disease is a process of disintegration, and inclines to diffuse and spread until met and counteracted by healthy molecular motion. It follows the law that motion takes place in the line of least resistance, and if the resistance is less on the side of health than it is on that of disease, then diseased molecular motion will spread, and *vice versa;* and, if there is not sufficient force present in the body, then death must inevitably follow. This resisting power varies in different individuals, and in the same individual in different periods, and it is well exemplified in the processes of mortification and gangrene, where the line of demarkation forms on the battle-ground between morbid and healthy molecular action. Indeed, this line may be fixing itself in a certain locality, and the strength of the patient be suddenly depressed still further, thus diminishing vital resistance, and allowing the line to settle still closer to the central part of the body. And again, a strong healthy subject is totally exempt from the invasion of any of these diseases under any circumstances, and it is only where there is found a vitiated state of the general or local health that such diseases prevail. The same conflict between healthy and diseased action is well witnessed in chronic ulcers, where the line between health and disease advances and recedes, making the ulcer appear large at one time and small at another, in direct correspondence with the strength of the patient, or of the part."

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* "American Journal of Medical Sciences," July, 1877, p. 167.

Now, then, if inflammation is in a quiescent state, i. e., neither extends nor diminishes its area, it is positive evidence that there exists an equilibrium between health and disease, and, if from any incidental cause the normal activity of the surrounding part is depressed, the balance becomes disturbed, and the disease consequently spreads. So precisely, on the contrary, if the molecular activity of the surrounding part is from any cause enhanced, the balance is likewise destroyed, and health extends its territory. In these therapeutic agents we have special elective forces wherewith we are able to enhance molecular activity in the surroundings of inflammatory action, and thus force the battle line into those parts which were formerly held by disease, and by the continuation of such a process we are not only able to prevent the spread of the disease, but even to eradicate it.

It must, I think, be evident, then, from what has been said, that any such agent, which has the power of producing physiological or toxic effects on any special force or structure of the body, must likewise affect the same force or structure therapeutically; for the relation between the motion of the drug on the one hand and that of the bodily forces on the other is the same under both conditions, the only difference being the result of the antagonism between the two; hence we find that certain agents, which produce toxic effects on certain structures in large doses, will prove curative in some diseases of these same structures in small doses, or doses in which they only display their stimulant property. This gives us an intelligent and rational notion of the value which physiological experiments with drugs upon the healthy animal system bear to therapeutics as guides in determining their elective action, as well as their dose; and I hope it is needless for me to say here that such a principle of therapeutic action has no feature in common with the so-called law of *similars.*

Again, every organ in the body comprises a number of special parts or structures, and a therapeutic force may have an elective action on a part and not on the whole of the organ; hence it is obvious that, if a drug is not selected with a view or knowledge of this discriminative action, our remedial efforts must prove worse than useless; and I doubt not that a great many of our therapeutic failures are due to a want of proper appreciation of this single fact. Of this we possess a forcible example in the case of arsenic. This agent, as is well known, has a powerful stimulant and elective action on the skin, yet there is hardly a substance within the list of our remedies which has suffered greater misapplication in the treatment of skin diseases than arsenic. This abuse arises from the fact that not sufficient attention has been paid to its special elective action on the skin, for I think we have much reason for believing that it is where the cutaneous nerves are implicated only to a certain degree in the morbid action that the curative efficacy of arsenic is the most marked. Advisedly do I say that arsenic is only useful when there is slight, or what may perhaps be called functional, disturbance of the nerves of skin; for in herpes zoster and other similar affections, where there is often a visible structural change in the cutaneous nerves and in their main trunks, it is valueless, and stronger stimulant measures are required to bring about a cure.

We have already seen that the effect of a therapeutic force on the body is in proportion to its quantity as compared with that of the bodily forces with which it comes in contact. Now, if the bodily forces were of equal strength in every individual, it is apparent that the same effect would always follow a given quantity of any remedy; but since there are all shades of difference between different individuals, and even in the same individual under different circumstances, the quantity which would prove a stimulant to one person might be a depressant to another, or this might happen to the same individual at different periods. Hence it is very plain that the line which divides the curative from the toxic effects of a drug varies, though it is sharp under different circumstances, and that great caution is necessary to obtain the former and to avoid the latter; and this leads me to say a few words concerning the important question of dosage, and what I do say here relates more particularly to the stimulant action of remedies, or to those which have the power of enhancing molecular action of the body.

The only aim, then, in the administration of such medicines is to secure the greatest possible amount of stimulation without engendering any of their toxic qualities, and, if what has been said is true, it is obvious that if we undertake to introduce the quantity of a medicine at a single dose, which has even proved a stimulant dose in a number of cases, we run the risk of producing undesirable results in individual patients. Therefore by far the safest and most successful method in the majority of cases is to give a small and oft-repeated dose, continue it until the full stimulant effects are secured, and then withdraw it, or give it at longer intervals. Another and perhaps a more important reason for a minimum dose is this: a dose which has no influence whatever on the healthy system can yet produce toxic effects in disease, for, if all things are equal, the body or any of its structures when diseased is weaker, has less resistance, and hence is much more readily overwhelmed by an aggressive force than in health. Of course this is a rule which can not be followed at all times without deviation, for in certain emergencies—as in great pain, for example—it is necessary and also justifiable to resort to large doses even at the risk of producing toxic symptoms; but, where there is no great urgency for immediate relief, the above method is the only scientific and rational plan of medication, and in this way we gain, as Ringer says, the maximum effect of a minimum dose. One thing, however, must be borne in mind, that, as a rule, the older or more chronic the disease the larger must be the dose to eradicate it, or the longer will be the time required to make an impression on it, for a chronic disease is more firmly located in a tissue than an acute one, and thus offers more protracted resistance to an attacking force.

The following cases are herewith presented in order to illustrate the foregoing principles of therapeutic action in a practical light. They have all been selected from regions of the body where the nature of the disease could not be mistaken, and where the result of treatment was readily perceived. They will be related in as condensed a form as is consistent with their intelligible comprehension, and comments will be made wherever necessary.

Case I. *Tincture of Aloes in Prolapsus Ani.*—Saw J. G., aged two years and five months, first on August 5, 1878. She was then suffering from prolapsus ani and diarrhœa. The diarrhœa yielded readily to ordinary remedies, but the bowel protruded as before. I ordered the mother to wash the prolapsed rectum with a decoction of tannic acid, which she faithfully carried out until August 19th, when I saw the child again. There was no improvement. I now gave her drop doses of tincture of nux vomica every three hours, which was continued for more than a week without any perceptible alteration. On September 2d, I began to treat her with drop doses of tincture of aloes every two hours, with marked benefit in the course of two days. She continued to improve under the medicine, the bowel returned to its normal condition and remained so.

Remarks.—It is hardly incumbent on me to say anything concerning the therapeutic action of aloes, for it is well known to have a special affinity for the lower portion of the alimentary tract. Wedekind and Phillips hold the opinion, which was confirmed by the researches of Rutherford and Vignal, that it also possesses a cholagogue action. In the above case, however, it was not employed with a view of obtaining its hepatic action, but principally for its influence on the lower bowel, and I think that it has, in the manner above indicated, conferred a healthy tone on the relaxed muscular coat of the rectum. Not every case of prolapsus ani, however, can be intrusted to the curative action of aloes, but I think its failure can be accounted for from the fact that the relaxation of the bowel extends further up than its own influence, and such cases often yield to its combination with nux vomica, or to the latter alone, whose sphere of decided action at least reaches above that of aloes. I think the reason for the shortcoming of nux vomica in this case was due to the fact that the lesion was principally confined to the extremity of the bowel. That nux vomica will not fail when the proper conditions are present is evident from the following case:

Case II. *Tincture of Nux Vomica in Prolapsus Ani.*—D. S., aged two years and four months, became subject to diarrhœa in the early part of the present summer, and I was summoned to see her August 20, 1878. The number of stools amounted to as many as five and six during the day, and also became somewhat bloody. I treated her with opium, ipecacuanha, magnesia, and tannin, without much decided benefit to the diarrhœa, and to complicate matters the bowel began to protrude. On September 1st, I began to treat her with half-drop doses of tincture of nux vomica every half hour, and in a few days both the diarrhœa and the prolapsus improved. In a few days after the bowel was well and the diarrhœa had ceased, the medicine was neglected, and the mother fed the child with some apples, which brought on both disorders again. Ordered the medicine to be renewed, and with the same beneficial result as before.

October 7th.—Continues well.

Remarks.—In nux vomica we find an agent which has an undoubted action on the nerves of the intestinal canal, and in this manner influences its muscular coat, and we have reason for believing, from the persistent irritation and diarrhœa, that that part of the alimentary canal which is comprised by the large bowel was involved in this case. Aloes would certainly have had a beneficial action on the rectum, but it is exceedingly improbable that it would have relieved the whole trouble.

Case III. *Tincture of Cantharides in Irritable Bladder.*—Mrs. P., aged about twenty-seven, primipara, pregnant about four months and a half, consulted me September 15, 1878, on account of an incessant pain in the region of the bladder, accompanied by a continuous desire to pass water. She says that she is compelled to get up as often as a dozen times during one night to urinate, and that she is in misery both day and night. She refers her pain directly to the neck of the bladder. I gave her morphia, bicarbonate of soda, etc., and applied hot flaxseed poultices to the seat of pain without any decided relief. On the morning of September 27th, I began to give her drop doses of tincture of cantharides in a teaspoonful of water every hour and a half. She soon began to improve, and the following night she only passed water twice. Last night (September 28th) she only urinated once. The pain and irritability subsided altogether under the influence of the medicine.

Case IV. *Tincture of Cantharides in Incontinence of Urine.*—W. R. (October 11, 1878), aged four years, has been troubled with incontinence of urine for the last two or three months, his water escaping almost every night. Gave him one drop of tincture of cantharides morning and evening with great relief.

Remarks.—Among the specific effects of cantharides is its action on the mucous membrane of the urinary passages, especially on the bladder and its neck—causing violent tenesmus and strangury in that organ in large doses. In Case III., it undoubtedly removed the existing irritability in the bladder by the method which we saw such agents possess in relieving inflammation (for irritability is but removed a step from inflammation) by well-regulated stimulation. In Case IV., this agent, by its stimulant action, infused a more healthy tone into the contractile structure of the neck of the bladder, and thus enabled it to prevent any further involuntary escape of the urine.

Case V. *Fluid Extract of Bryonia in Subacute Pleurisy.*—On September 2, 1878, I was called in to see T. D., aged fifty-five, who suffered with a severe and sharp lancinating pain in both sides of the chest. He is unable to take a long breath on account of the intense pain which is occasioned by such an act. Pulse, 110. Skin hot and dry. I learn that some years ago he was subject to what he calls pleurisy, and on examination I find pleural friction in both mammary regions of the chest. I applied a tight bandage around his chest, and gave him one drop of fluid extract of bryonia every half hour in half a teaspoonful of water.

September 3d.—Saw the patient again this morning, and found his condition very much improved. He is now able to sit up in bed, and can take a long breath without much inconvenience. Continued same treatment.

4th.—Discharged him. I also ordered him to take plenty of milk and other nourishing fluid food.

Remarks.—It is well attested by all those who have made physiological experiments, or who have used it therapeutically, that bryonia has a marked specific action on the serous membranes of the body, notably so on the pleural surfaces. Phillips says that it will cause "fatal pleurisy with fibrinous effusion"; and of its therapeutic value he says that in pericarditis and pleurisy "it fully equals any remedy that exists." Hughes says that "no poison affects the serous membranes so certainly and powerfully as bryonia." I have seen similar excellent results in other cases of pleurisy, as well as in peritonitis, although my observation leads me to think that it is perhaps more efficacious in the former than in the latter disease.

Case VI. *Fluid Extract of Podophyllin in Clayey Stools of Infantile Diarrhœa.*—To-day (September 1, 1878) I saw T. D., aged fifteen months, a convalescent from a severe attack of cholera infantum, who is still subject to diarrhœa. His evacuations number about five or six during the twenty-four hours, and are of a grayish-white color, resembling light clay. His diet consists of milk, barley-water, beef-tea, and cod-liver-oil emulsion. He is very much emaciated. I gave him half-drop doses of fluid extract of podophyllin every two hours in half a teaspoonful of water. Saw him again on September 3d, and the mother reports that his stools are changed to a more healthy color and consistency, and that he has only had three stools within the last forty hours.

September 6th.—Still improving.

12th.—Discharged well.

Remarks.—I think there can be no doubt that the clayey stools of this patient were the result of an inactive liver, and that as soon as the podophyllin, which is now well known to be a powerful cholagogue, stimulated this organ to its wonted activity, the stools assumed their healthy color and consistency.

Case VII. *Fluid Extract of Hamamelis in Internal Hæmorrhoids.*—E. W., miner, aged ——, came to me on the morning of October 16, 1878, and consulted me concerning bleeding piles, which have troubled him off and on for seven years. He had been under my care before for the same disease. He says he is in great pain, which extends from the anus up on the left side of the spine as far as the top of the pelvis, and that he loses as much as half a teacupful of blood at each evacuation of the bowel. He looks haggard, and walks in a stooped position, saying that he can not stand erect on account of the pain in his back. Gave him one drop of fluid extract of hamamelis every hour in half a teaspoonful of water.

October 17th.—Saw him again, and he reports that he is somewhat better; the pain in the back is relieved very much, but he still loses some blood at stool. The hæmorrhage is not so profuse, however, as it was before he took the medicine. Continued same treatment.

18th.—He now reports himself improved in every way; less blood in stools, and no pain at all in the back.

19th.—He is well, and says that he never got over any attack so quick as he did at this time.

Remarks.—This American remedy controls the vascular mechanism in a manner similar to digitalis, its action, however, being confined more exclusively to the venous circulation. Dr. Ringer says: "It is very highly recommended in piles, both to check bleeding and to cure the diseased veins; and I have found it singularly successful and prompt in arresting this form of bleeding, even when amounting to half a pint a day, repeated almost daily for months or years. It should be employed either as a lotion, injection, or cerate in piles, as well as by the mouth. It has been recommended in varicocele; and one case I have seen in which, during the employment of this drug, the varicosities entirely and apparently permanently disappeared." My excellent friend Dr. E. R. Mayer, in his essay on "Specific Medication," says that "Hamamelis Virginica certainly has a specific action upon the venous system, and is, independently of its content of tannic acid, an astringent and tonic to weakened, engorged, and dilated veins, to venous sinuses or capillaries, and a rarely failing remedy for all the passive hæmorrhages. . . . In bleeding piles its good effects are most marked. Its continued use in small doses will also frequently cause the largest hæmorrhoids to contract and to disappear, if great infiltration and thickening of the cellular tissue have not occurred. In these cases, the local use of the decoction, or of an ointment or poultice of the medicine, adds much to the success of the treatment."

Case VIII. *Sulphate of Atropia in Hydrosis.—July 31, 1877.*—G. L., aged nine months, has been troubled with profuse perspiration about the head, neck, and shoulders for the last two months. The sweat is cold and appears in large drops, and mostly occurs during sleep or upon the slightest exertion, as crying, for instance. The sweating is so excessive that she literally saturates everything under her head, and the nurse informs me that it is necessary to change the pillow three and four times during one night in order to keep her dry. She is pale and emaciated. I prescribed for her $\frac{1}{300}$ of a grain of sulphate of atropia once a day or every other day as the case demanded, and the sweating ceased forthwith.

Remarks.—I think it is now definitely settled that atropia in small doses has the power of reducing the caliber of the capillary blood-vessels; and, by thus diminishing the circulation of the skin, it promotes a more active blood-flow through this organ, and restrains the loss of the watery constituents of the blood. Many other similar cases of special therapeutic action in diseases of other structures of the body could be given, but I think these will suffice to illustrate the object of my paper.

Art. III.—*Gun-shot Wounds of the Mouth.* By W. St. George Elliott, M. D., D. D. S., late Executive Officer of Depot Field Hospitals, Sixth Army Corps.

The statistics furnished by the Surgeon General of the United States of the gun-shot wounds of the mouth, received during the late war between the North and the South, are probably as full and complete as have ever been published in any country; and yet the investigator in some special branch, as that under consideration, will find with regret that the "Reports" are by no means so full as they might be. In fact, there is so much left unsaid that improper inference might be drawn from them. Therefore, all records of this kind must be taken, not as positive evidence to sustain a theory, but accepted with a full knowledge of the very difficult circumstances under which they were collected, and with a proper appreciation only of their value. For it is manifest that the mortality resulting from wounds of any kind, or from operations of any sort, is in a large measure governed by attendant circumstances, as the physical condition of the patient, the healthfulness of the locality where the individual may be stationed, or the presence in the vicinity of contagious or zymotic diseases. In these cases the gun-shot wound is merely the exciting cause, while the death or disability resulting from such disease may be entirely the result of the disease, although tabulated and accepted as evidence for or against an operation, or in tables of comparative mortality.*

It may be here noticed that army surgeons are not agreed as to the importance to be attached to wounds of this class; for while Dr. Chisholm of the Confederate army, together with Drs. Stromyer and Mathews, considers them of minor importance, Drs. Guthrie and the very able compiler of the "Surgical History of the War," Dr. Otis, from the tables largely quoted in this paper, hold a contrary opinion.

If the soldier is in good health at the time of the receipt of the injury, gun-shot wounds of the jaws need not necessarily be considered very serious, nor is recovery generally long delayed, that is, provided neither the ball nor foreign body has remained lodged in the bony structure nor the broken portions of the bone remain ununited. But as this is so commonly the case, the disability is really greater than might be inferred from the low ratio of mortality; nor could any other result be expected. If an irritant remain present we must expect the natural result of that irritation, for, unfortunately, encysted protection is comparatively rare.

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* As Pathological Surgeon of the Depot Field Hospital, Sixth Army Corps, the opportunities of the writer for recognizing these facts were quite extensive. *Post-mortem* examinations were made sometimes to the extent of fourteen *per diem*. Wounds of comparatively little importance at times assumed a gravity little expected, and subsequent *post-mortem* examination would show a constitution broken down by the hardships of active army life. Also when Executive Officer of Camp Parole Hospital, Maryland, my attention was called to the enormous mortality prevailing among the returned soldiers from the Southern prisons. Gangrene, erysipelas, typhoid fever, and diarrhœa prevailed to a very large extent. Mere flesh wounds became the seat of disease and often ended in death. Now, it would not be just to include reports from places of this character with those from troops whose physical condition and hygienic associations may be above the average.

As might be inferred from the anatomical relations of the parts, the mortality following gun-shot wounds of the jaws and face is quite large, although in this respect the surgical reports of the Crimean and other wars do not show so large a percentage as do those of our own. The records do not give us very full data of the wounds of the mouth, such wounds in many cases being classified with those of the face. The total number of those involving the mouth, with and without fracture, and including flesh-wounds, is 8,226, of which 4,914 were flesh-wounds with 58 deaths, or 1⅛ per cent. of the whole, and 3,312 were fractures with 340 deaths, over 10 per cent.; but, as the results of a large portion of these cases are unknown, our ratio may be too high, for, of the 4,914 cases of flesh-wounds, the results of no less than 1,150, or 3·1 per cent., are unknown, and of the 3,312 cases involving fracture 330, or 10 per cent., were unknown.

A further inquiry into the details show us that of the 1,607 cases of fracture of the inferior maxilla with 121 deaths, 157, or 9¾ per cent. were unknown; of the superior maxilla, 555 cases with 42 deaths, 38 were unknown; of both maxilla bones, 157 cases, 13 deaths, and 12 unknown. But the value of these comparative statements is partly lost by the following record: There were 260 cases of *maxillary not stated*, with 33 deaths and 51 unknown.

Of the 2,579 cases of fracture of one or both bones there were, of the 2,321 cases ascertained, 209 deaths or 12 per cent.

The mortality of gun-shot wounds of the face is from one eighth to one quarter those of the head, while the disability resulting from the destruction of bone in or about the nasal fossa, the difficulty in mastication from the loss of teeth, and fistula connecting with necrosed bone, make a large proportion of the cases reported invalids for life.

The scope of this paper will not allow us to take up sword or bayonet wounds, nor those accidental cases so common where large numbers of men are gathered together. It might be mentioned here that, of the 4,914 cases of flesh-wounds of the face, 17 were complicated with erysipelas, 3 with gangrene, 7 with pyæmia, and 9 of secondary hæmorrhage.

An inquiry into the comparative frequency of gun-shot injuries of the upper and lower jaw shows that there were nearly three times as many of the latter as of the former, both receiving injuries in 157 cases, or less than $\frac{1}{9}$ of those received by the inferior alone. Now, throwing out those cases whose history we are not able to trace, we have 1,450 cases reported of the inferior maxilla, of which 121 died, or $8\frac{1}{3}$ per cent., 779 were discharged, and 550 returned to duty; whereas of the 517 cases of the upper jaw, whose history we can follow, 42 died, or $8\frac{1}{3}$ per cent., 247 were discharged, and 228 were returned to duty, showing us three times as many fractures of the lower as of the upper. The ratio of death continued about the same, but a larger proportion were returned to duty. This result is in a measure surprising from the fact that we would naturally look for a greater mortality resulting from injuries to the upper than to the lower, from its anatomical associations. Nor are we prepared to find that not only is the mortality no higher, but there were a larger proportion returned to duty and a smaller number discharged for disability.

No doubt this unexpected result comes from the mechanical injury to the lower jaw, destroying its usefulness by destroying or limiting its motion, for it is but reasonable that a wound of comparatively little consequence, when occurring in the superior maxilla, may destroy the continuity and thus the usefulness of the lower jaw: in other words, the mobility of this bone is essential and a comparatively slight injury may destroy this.

In the "Medical and Surgical History of the British Army" that served in the Crimea during the war against Russia in the years 1854–'5–'6, there are reported 538 gun-shot wounds of the face, of which 107 were fractures and 426 flesh-wounds, or a little over 7 per cent. of the entire number of wounds, the mortality rate being 26. This is accounted for by the fact that the fractures were 20 per cent. of the face injuries, whereas the records alluded to in this paper would show as large a proportion as 33 per cent. The French show a larger number of cases received during the same war. Of 1,414 cases of face wounds of all kinds, the mortality was 184, or 13 per cent. The same authority, Dr. Chenu, reports of the Italian war of 1859, 955 cases with 114 deaths, or 11 per cent.

Of the operations connected with injuries to the buccal cavity, our own records show 81 cases of excision of parts of the inferior maxilla, of whom 8 died, 58 were discharged for disability, 9 were returned to duty, and 6 were unknown. Of the excision of parts of the superior maxilla, there were 13 cases with 3 deaths, 8 discharged, and 9 returned to duty; but we can not tell from these statements what proportion of the 268 of "Removal of bone," of which 16 died, 136 were discharged, 98 returned to duty, and 18 unknown, were connected with the cavity under consideration.

So in regard to the ligature of arteries deemed necessary to control hæmorrhage from gun-shot wounds of the face. The common carotid was ligated 52 times with 37 deaths, 11 discharged for disability, etc., and the external carotid was tied 6 times, of which 2 died. The facial was lighted 5 times with 1 death; but, whether in these cases the maxillary bones or buccal walls were injured or not, it is impossible to determine, without going back to the original reports of the surgeons who reported the operation, if indeed they could furnish the desired information.

Before taking up the subject of the treatment of gun-shot wounds of the mouth, it may be of interest to cite a few of the more interesting cases we have presented to us by Dr. Otis.

Sergeant G. R. Burroughs, aged twenty-three. Fracture by conoidal ball of the ramus of inferior maxilla, wounding the lingual and facial artery; fourteen days after lost through hæmorrhage from the wounded arteries eighteen ounces of blood. Three days after hæmorrhage recurred, but was stopped by free incision and the evacuation of pus and clot. Died nineteen days after the receipt of injury.

Daniel Cox, aged twenty-five. Musket ball entered anterior to left angle of jaw, fracturing lower maxilla, passing under tongue and out a little below and to the right of the great horn of the hyoid bone, injuring the sublingual artery. Profuse bleeding from artery; lost four pints of blood. Right common carotid artery ligated four days after receipt of injury, hæmorrhage ceased; two days after slight bleeding, controlled by persulphate of iron; the two following days renewed bleeding, when the left extreme carotid was tied; discharged seven months after and pensioned, wound still discharging.

Sergeant B. Cooper. Ball entered close to the mastoid process of temporal bone (right), passed through and lodged under the integuments in the malar bone beneath the left eye, escaping in its passage all the larger vessels. The wound soon healed, leaving an opening in the palate about as large as a pea. An operation was resorted to with a view of closing this orifice but without success, and the patient, when discharged, spoke imperfectly and had difficulty in swallowing.

Private E. De Forest. The missile entered the upper lip, passed through the tongue, and emerged from the middle of the sterno-cleido-mastoid muscle; nine days after, while in the hospital, the patient died suddenly. Autopsy showed that a part of the common carotid artery had been destroyed by the ball.

Sergeant George B. Muchant, aged thirty-three. Gunshot wound of neck with fracture of the inferior maxilla, secondary hæmorrhage to the amount of eighteen ounces. Five days after receipt of wound, the right common carotid was ligated; fifteen days after it was again ligated, and thirty-four days after the second ligation he was returned to duty. In this case more than half of the ramus of the right side of the lower jaw is gone, and there is but limited use of the right arm, doubtless owing to some injury during ligation.

First Lieutenant Thomas Maley. An explosive ball entered the face beneath the right zygoma, and passing through exploded in the left antrum; twenty days after hæmorrhage commenced, which recurred three times. Twenty-six days after battle the right common carotid was ligated; from that time forward patient did well.

Captain Jacob Schwaetzlander, aged thirty-two. Ball entered inferior maxilla, right side, in front of its angle, passed through the tongue about an inch behind its apex, and emerged through the inferior maxilla of left side, fracturing it. In its course it shattered the jaw at point of entrance, removed several teeth and badly lacerated the tongue, so that the anterior part protruded from the mouth; in a short time, having become badly swollen, it prevented deglutition. He was fed for eight weeks with a tube. Three months after receipt of injury he was able to articulate distinctly and soon after was sent to duty with no disability.

Private Peter Rafferty. Ball entered upper lip on left side at angle of the mouth, passed through that side of tongue, thence obliquely across, struck the right lower jaw at a point one inch in advance of its angle, passed downward and outward, and emerged through the cheek, knocking out fourteen teeth, fracturing both jaws and cutting the tongue almost off at the middle. On account of profuse hæmorrhage the patient remained insensible twenty-four hours after the battle. Had colliquative diarrhœa for two weeks in a rebel prison. Some weeks after patient had another attack of diarrhœa, lasting two weeks, which produced great exhaustion, notwithstanding which he recovered, and is now a pensioner.

The treatment of this class of wounds, with the exception of fractures subsequently to be taken up, consists generally of the removal of loose pieces of bone, or rather of those pieces so loosely held as to preclude the possibility of subsequent restoration to health, the use of cold water as a dressing, and the judicious employment of disinfecting washes, as salicylic acid, permanganate of potash, etc. These cases should be left almost entirely to nature, but must of necessity be closely watched, for the great danger to be apprehended, as shown by the few cases reported, is secondary hæmorrhage. A comparison of the 130 cases reported in detail, of which the above cases are extracts, 40 were of the superior maxilla, with 12 deaths, and 90 were of the inferior maxilla, with no less than 39 deaths, these being with but few exceptions caused by secondary hæmorrhage. Dr. Otis, as well as Dr. Garrettson and others, considers the use of persulphate of iron as being ineffectual and delusive, whereas the experience of the writer agrees with the reports that the drug was certainly used many times with marked success.

This leads us to observe that the ligation of arteries for the control of hæmorrhage was not so common during the war as might have been expected. This may have been the result of a well-formed opinion that the operation did not hold out sufficient hope of successful accomplishment, for of the 68 cases reported, including even small vessels, as the superior thyroid, there were 41 deaths, a ratio of mortality that might well deter the thoughtful surgeon.

PLASTIC OPERATIONS.

The records of this class of operations are exceedingly brief, being but 32, which, when we consider that there were nearly 10,000 cases of wounds of the face, is but a very small proportion.

Without going into the matter in detail, we can not but mention the remarkable operation of Dr. Buck, as shown in the Burgan case, although it does not properly come within the province of this paper, as the operations were performed with the view of correcting deformity caused by sloughing ulceration of the superior maxillary bone and adjoining integuments, the result of injudicious administration of calomel in the treatment of pneumonia.

Of plastic operations of the mouth we have 12 recorded, and 4 of the chin, the most interesting of which is that of Corporal Henry Gibbs, of the Sixty-seventh Ohio Volunteers. The entire lower jaw was removed by operation, on account of gun-shot fractures of both angles and body. Unfortunately the value of this case is much reduced by our inability to follow it for a longer period than a month. At the time of his discharge the operating surgeon reported the patient free from external deformity.

A review of the sixteen cases of plastic surgery does not hold out a very encouraging prospect in this direction, for while there was, in the majority of cases, some benefit derived from the operation, yet the possible improvement was not sufficient to counterbalance the risk.

Prosthetic dentistry seems to have been called into requisition in but a small number of cases, an interesting one being that of Carlton Burgan, alluded to above, where, after Dr. Buck had performed his operations, Dr. Gunning, a dentist of this city, made use of some most ingenious appliances, not only to restore the contour of the face, but also to enable the patient to properly masticate his food. No case in history, as far as known by the writer, equals in interest that reported by Dr. Norman Kingsley in the January number of "The Dental Miscellany," for 1876. The details of this remarkable case are as follows:

A gentleman while hunting had the misfortune to discharge accidentally his fowling-piece, the contents of which fearfully lacerated his face. The charge of shot struck the face near the symphysis of the chin, carrying away a V-shaped section of the integuments, and badly comminuting the lower jaw and removing several teeth; it then passed obliquely upward and backward to the right of the right eye and thus across the temporal surface of the frontal bone. As it passed upward it carried away the entire right superior maxilla, all of the incisor teeth, the vomer, palatine and malar bones, and parts of the temporal, sphenoid, lachrymal, and turbinated bones. Fig. 1 gives a clear idea of the case when it came into the doctor's hands several weeks after receipt of the injury. The wound had healed, and part of the orifice had been closed by the formation of new tissue. The remaining portions of the inferior maxilla had united, but in so doing had of course destroyed the articulation of the remaining teeth, thus throwing the chin nearly an inch to the right and out of line. From the large loss of substance, articulate speech was impossible, and fluid nourishment only could be taken. The late Dr. Krackowizer now operated for the surgical relief of the case, breaking up the union that had taken place between the fragments of the lower jaw, which were then held securely in position by a splint devised by Dr. Kingsley and without bandaging. This restored the chin to its proper position. Dr. Krackowizer now performed several operations with a view to closing the orifice in the cheek, the first of which was to form a lower eyelid. This operation was successful, the flap being taken from the neighboring tissue as shown by the dotted line A, bringing the end up to the side of the nose to the point

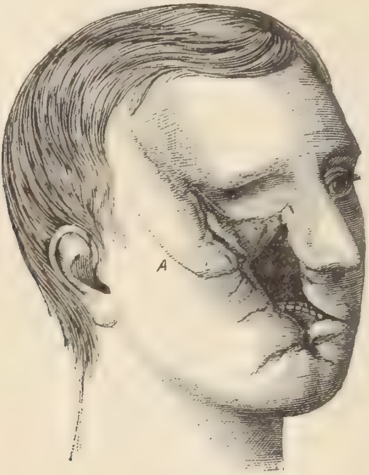

FIG. 1.

marked 1. At this stage Dr. Kingsley made the model from which the drawing Fig. 2 was taken. In the plaster cast is own a very good representation of the buccal and nasal cavities, including the lower jaw, tongue, fauces, soft palate, turbinated bones, and nasal passages to the nostrils. The impression of the parts was made entirely in plaster and taken in sections as follows: Plaster was first carried into all the intricacies of the nasal passages, thus making a roof to the mouth of plaster, the patient meanwhile breathing below the palate and through the mouth. After this was sufficiently hard it was removed, the portions which followed the recesses broken off to be subsequently restored, and the impression replaced. The removal of these portions permitted the patient to breathe then above the palate and through the nose. Plaster was then applied to all the remaining portions of the buccal cavity and the external adjacent parts, resulting in a model as shown in Fig. 2.

It was now necessary to make a mechanical restoration of the roof of the mouth, the superior maxilla, malar bones, and give the proper contour to the cheek. Dr. Kingsley's idea was to make an appliance to be supported on the sound left side of the face, passing across, and thus forming the roof of the mouth, the flaps to be made surgically to fill up the hole in the cheek, and which would pass below the flaring malar process of the apparatus on that side and thus support it.

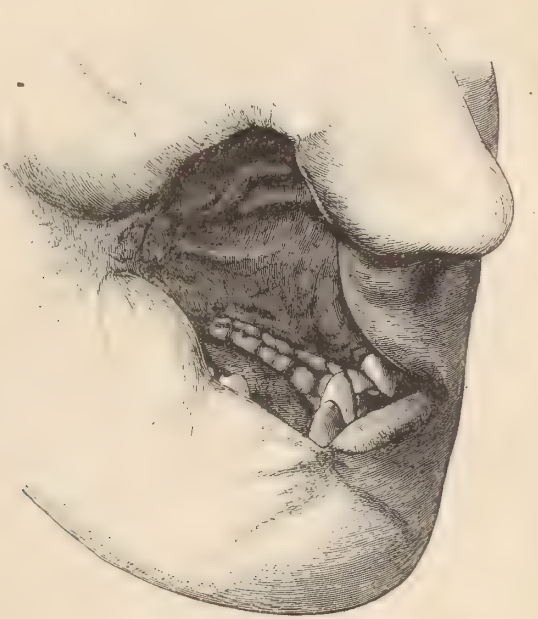

FIG. 2.

The first experiment in the manufacture of the appliance was with vulcanite, and was so formed as to replace in one piece the roof of the mouth, superior maxilla, malar process, and the teeth in front and on the right side; part of the apparatus was made with vulcanite, and part with aluminum, and is represented in a modified form in Figs. 3 and 4. The aluminum plate is shown at E, Fig. 4. A shows that portion meant to support the inner corner of the eye, B the malar process, D the edge which laps on the soft palate. The modification above alluded to is merely in the size of the malar process B. It was the intention, which was subsequently carried out, when introducing the appliance to make an incision in the soft tissue which had then filled the cavity caused by the loss of the malar process, and introduce that portion of the plate marked B into it, and thus give the desired contour to the part. When the hole in the cheek was closed by a temporary patch, articulation was distinct. Within a few days it became evident that the appliance was dropping downward on the right side, and the pressure on the tissue over the prominence marked B was causing absorption, the integuments becoming transparent. At the time of its introduction, there was nearly three quarters of an inch of tissue over it; two weeks after the appliance had traveled laterally until its malar process was outside the cheek. This experiment was in a measure successful, as new tissue formed and filled up the cavity behind the appliance as fast as it moved, so that in the end there was much more fullness than there was before the

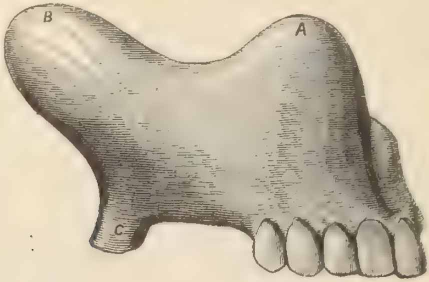

FIG. 3.

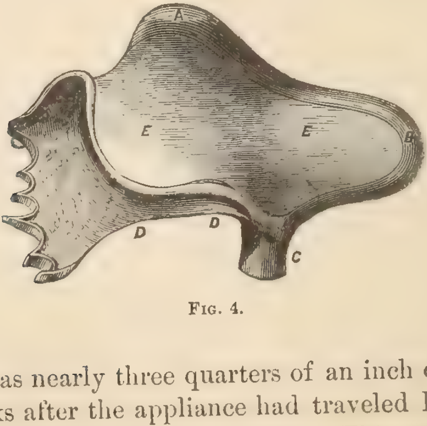

FIG. 4.

experiment was made. As it was Dr. Krackowizer's intention to close the hole in the cheek by a final surgical operation, it was desirable that the appliance should be constructed of a better material than vulcanite, for, when once introduced and the operation performed, it could not be removed during life. As lightness was a material object, it was desirable to make the apparatus of aluminum; but, after weeks spent in useless experimenting, this material had to be abandoned on account of the impossibility of soldering it together.

The new appliance was made of twenty karat gold rolled very thin, and was in form the same as the previous one. Molars on the right side were dispensed with, both to avoid weight and the movement of the piece under mastication; sufficient teeth for that purpose remained on the other side of the mouth. The projection marked C came down to meet a molar tooth on the lower jaw.

Professor Krackowizer now, after the introduction of the appliance, performed the final operation, which consisted in making an incision across the upper lip, parallel with and about half an inch from its border, and the whole length of the mouth. This strip, which was free at the end on the right side, was stretched to the cheek on the right, thus making a new oral opening. At the same time other incisions were made in the vicinity of the angle of the jaw, and the cheek worked up until it was brought into contact with the opposite side of the cavity at the base of the nose. The cavity was then completely closed. Immediately on recovery, after the introduction of the gold apparatus, the patient stated that he masticated and enjoyed his food as well as ever he did, and there was certainly not a trace of defect in his articulate speech.

Treatment of Fractures of the Jaws.—In fractures of the upper jaw there is not the same demand for mechanical support as in those of the lower, as there is less tendency to displacement. In those cases which do not include fracture of the lower jaw, the occlusion of the teeth and the support of a bandage is all that is necessary. Unfortunately, however, gun-shot fractures are always compound. The injury is more by comminution than displacement. It is only in those cases where support is actually required that some form of interdental splint is necessary.

Fractures of the lower jaw are treated by splints of great variety, most of them meeting with a greater or less degree of success, but the vast majority are unsuited, by their complexity, to the requirements of army life. Kingsley, Garretson, Gunning, Nasmyth, Boyer, Mutter, Startin, Lonsdale, Hamilton, and a host of others have contributed excellent devices for this purpose, while Barton, Gibson, Rutrenk, Salicett, Jousset, Bush, Harty, Houselet, Kluge, and Malgaigne have added their systems of bandaging and dressing. Were we compelled to make a selection from this large number of devices, our preference would be for that excellent device invented and successfully used by Dr. Kingsley of this city, at least for civil practice; from much experience in the field, we recognize the fact that an apparatus to be generally successful must be so simple as not only to require but little skill in adjusting, but should be made of such material as can be readily procured.

For interdental and subdental purposes the writer has found great satisfaction in the use of gutta percha, and has yet to see a case where it could not be applied. A typical case would illustrate its usefulness under trying circumstances.

The case occurred while the writer was practising dentistry in Japan in 1871. A gentleman had been thrown from his horse and subsequently trodden upon by the animal, producing a compound comminuted fracture of the inferior maxilla, fracture and displacement of the right superior maxilla, with the loss of several teeth in the lower jaw. After the swelling had in a measure subsided, a roll of gutta percha about three inches in length and an inch in diameter was softened in hot water, bent in the form of a horseshoe, and introduced into the mouth; the fractured lower jaw being held in position, the teeth were now slightly closed, sufficiently to indent the gutta percha. The splint was then withdrawn, cooled in water, and examined. It was found that the right lower canine, lateral incisor, and both bicuspids were displaced and loose. The splint was now altered to meet the requirements of the case, the articulation corrected, inclined planes cut out of the material to force the detached teeth into position. The intervening material between the slight depressions formed by the cusps of the teeth in either jaw to the extent of nearly the whole material was now cut away, with the exception of pillars left to support the two articulating surfaces. This gave an opening for breathing and for the introduction of food. In six weeks the case was discharged cured with but slight deformity of the inferior maxilla, shown only by inspection. This case was more fortunate in its results than another case that came under our observation about the same time. The late William H. Seward, when traveling around the world, and when at Yokohama, Japan, required the services of a dentist. Upon examination it was found that the inferior maxilla was comparatively useless for masticating purposes, there being a false joint at the seat of the original fracture, no union having taken place.

This case will be remembered from the world-wide notoriety of the circumstances attending the injury, as well as the reports, which have been universally believed, that the patient was benefited by the treatment he received for the cure of his fracture.

ART. IV.—*Extravasation of Urine due to Lesions of the Urethral Canal.*

By A. L. RANNEY, M. D., Adjunct Professor of Anatomy in the University of New York.

THE urethral canal, by most anatomists, is divided into three portions, the first including that portion which pierces the prostate gland, extending from the mouth of the bladder to the posterior layer of the triangular ligament, and called the *prostatic* portion; the second including that portion extending between the two diverging planes of fibrous tissue, the anterior and posterior layers of the triangular ligament, and called the *membranous* portion; and the third embracing that part of the urethra extending from the anterior layer of the triangular ligament, deep in the perinæum, at a point corresponding superficially nearly to the perineo-scrotal junction, to the meatus urinarius in front, and called the *spongy* portion of the urethra.

This spongy portion is usually subdivided for convenience sake into

1. The *bulbous* portion, comprising that part of the spongy portion contained within the perinæum.

2. The *pendulous* portion, which includes that portion of the urethra which lies anterior to the symphysis pubis.

It will be unnecessary to enter minutely into detail as to the precise anatomical structure of the urethra in its different localities, to clearly elucidate the subject under consideration, further than to briefly mention what anatomical points connected with the three principal divisions directly bear upon the subject of urinal extravasation. The first or prostatic portion, then, is seldom if ever ruptured. Being inclosed within the substance of the prostate gland, extreme tension from urinal pressure can readily be borne, unless softening or degeneration of its walls occur through prostatic abscess. Even when this disease is present, the accumulated pus generally opens inward into the urethra without sufficiently destroying prostatic tissue to allow of infiltration through its substance into its cellular investment. Traumatic injuries alone, or surgical operations in this locality, need therefore give us no just cause for alarm, since spontaneous laceration of the prostatic portion of the urethra is almost an anatomical impossibility. Not so, however, with that portion of the urethra immediately adjacent. This so-called membranous portion possesses no such anatomical bulwark or protective glandular investment; on the contrary, it consists only of the three urethral coats, invested by a thin layer of muscular tissue, the compressor urethræ muscle, and unsupported even by the tissues of the perinæum, being simply caught at either extremity by the two diverging layers of the triangular ligament. These layers arise from a common origin at the symphysis, separate gradually till pierced by the urethra, at which point they are nearly one inch apart, and afterward gradually converge, to be again inserted in common at the median raphe of the perinæum. In the space so formed, called the cavity of the triangular ligament, great latitude of motion is afforded to the urethra, which thus readily accommodates itself to all possible positions of the body. It is here also in somewhat intimate relations to important vessels and nerves, and is loosely invested in areolar tissue.

In a normal urethra, unaffected by any disease liable to obstruct the free evacuation of urine, there is no necessity for further urethral support in this locality. The urinal current has already obtained its direction by passage through the prostatic portion, and, finding an immediate escape through that portion of the urethral canal contained within the corpus spongiosum, is capable of little if any power of distention or rupture. When, however, through structural changes in the urethral coats, impaction of calculi, fracture of the pelvis, or other causes which obstruct the flow of urine, complete or partial inability to evacuate the bladder arises, great distention and pressure ensue in those portions of the urethra lying posterior to the seat of obstruction. Hence it is that we find in the majority of cases a marked enlargement of the urethral canal posterior to the point where constriction exists. This enlargement is due to stretching of the urethral coats, and necessarily weakens the resisting power of the canal, and, when sufficiently extensive, suddenly produces rupture. It is to be expected, then, that rupture of the urethra, when due to organic stricture, will occur at the weakest and least protected portion of the urethral canal. This is undoubtedly the membranous portion,* and, as the most frequent seat of organic stricture is slightly anterior to the bulbo-membranous junction, where it would produce the most severe strain to the urethra, from retained urine, this becomes the most frequent seat of rupture.

When rupture occurs in this locality, the urine is generally emptied into the cavity of the triangular ligament. I say *generally*, because in occasional instances, the rupture occurring either at the immediate junction with the bulb or slightly anterior to it, urine is allowed to escape from the perinæum and infiltrate to a much greater extent.

When the cavity of the triangular ligament is filled, urine can not possibly escape beyond the rami of the pubes and ischium, without rupture of either its anterior or posterior layer. A tumor only is detected, therefore, confined to the perinæum, most prominent in the median line, and usually accompanied with a sense of burning or smarting, associated with difficulty in micturition, often total retention, and more or less febrile excitement. The skin soon becomes reddened, œdematous, and painful over the circumscribed extravasation.

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* Thompson on "Stricture of the Urethra."

Fluctuation is usually detected on palpation, and a diagnosis is generally possible before dangerous symptoms arise.

The only disease liable to be confounded with it is perineal abscess, and this is readily excluded on the following grounds:

EXTRAVASATION OF URINE.	PERINEAL ABSCESS.
Occurs suddenly during an attempt at micturition.	Occurs slowly, with local heat and uneasiness for days before swelling was perceived.
Always accompanied with partial or complete retention.	Accompanied with vesical tenesmus and repeated desire to micturate, which at *first* is easily gratified.
Is generally preceded by a venereal history and symptoms of a urethral stricture.	Can usually be traced to some traumatic origin.
Tends toward rapid sloughing.	Tends toward pointing and subsequent evacuation of pus.

Unless promptly treated, this form of extravasation proceeds to sloughing of the triangular ligament and more extensive urinal infiltration. This rupture or destruction of the triangular ligament may be either through the anterior or posterior layer. If through the latter, symptoms resembling those of infiltration in the vicinity of the neck of the bladder arise; but, if through the former, the symptoms vary in no respect from those occasioned by rupture of the urethra in its more anterior portion.

Immediate surgical interference is therefore absolutely demanded. The patient should be anæsthetized, placed in the lithotomy position, a guide of whalebone passed to the bladder if possible, over it a grooved staff to the anterior part of the urethral stricture, and external perineal urethrotomy performed.

The tissues of the perinæum are divided in the median line till the membranous portion of the urethra is reached. This can be felt behind the lower extremity of the grooved staff, which, having been passed over the guide, now rests at the most anterior part of the urethral obstruction. The urethra should be now thoroughly incised at this point, both behind and in front, the guide, when exposed, being a sure indication that the urethral canal is opened. Free drainage to the escaping urine is thus afforded, and the urethral obstruction is subsequently treated by passage of conical sounds at regular intervals.

Suspension of the scrotum and the subsequent treatment of lithotomy only are necessary to complete the cure.

The different steps of this operation have been carefully written upon by Dr. J. W. S. Gouley, and by his modifications and improvements great simplicity has been attained, and its dangers greatly modified.

If this treatment be not too long delayed, good results will generally follow, as the sloughing process will thus be arrested, and an opportunity afforded for thorough cleansing of the wound.

Should rupture of the urethra take place in front of the triangular ligament, urinal infiltration becomes no longer confined to the perinæum. The scrotum in this case is usually rapidly filled, and dilated to an enormous extent; the urine then passes upward upon the abdomen toward the umbilicus, backward underneath the superficial perineal tissues, and downward on the inner aspect of the thighs.

The seat of rupture in the urethra may, however, be so far forward, as occasionally happens, that both the scrotum and perinæum escape urinal infiltration. In these cases the body of the penis undergoes immense distention, and, if the extravasated urine be allowed to remain, absolute destruction of that organ may occur through uncontrollable sloughing.

In either of these varieties, however, the treatment differs but little from that of rupture within the triangular ligament, save that free incisions have always to be made wherever the urine may have burrowed. No effort to render the drainage complete should be spared under any circumstances. When the scrotum is fully distended, a median incision, through the scrotal raphe, of sufficient depth to allow of full escape of the infiltrated urine, is usually the most desirable, and attended with the least destruction of tissue. This incision is usually too superficially made: an incision of one or two inches in depth will often be required before complete evacuation is established.

I have seen in five instances the testicles completely denuded of scrotal covering from urinal extravasation; when, had a median incision been made immediately after the occurrence of the accident, doubtless the scrotum would have been preserved. This, however, is not an accident of so grave a character as one would be liable to suspect. Granulations usually spring up to an enormous extent, and eventually succeed in reënclosing the testicles in a serviceable but contracted covering.

In all cases * of extravasation of urine due to lesions of the urethra, that canal should, without fail, be carefully explored, and the existing constriction either dilated, divulsed, or incised.

Of these operations, I prefer gradual dilatation by conical sounds over all other methods, where it is practicable. When not so, I prefer urethrotomy when the strictures are in the pendulous portion, and divulsion when in the membranous.

It not unfrequently occurs, after profuse suppuration has existed for long periods from the incisions made for the relief of urinal infiltration during its active or inflammatory stage, that all tendency to repair ceases, and large suppurating subcutaneous cavities and canals remain, which communicate externally through long sinuses, and, by their continued drain upon the general constitution of the patient, eventually hasten death through exhaustion or some complicating disease.

This is often the result simply of a contracted orifice, causing imperfect evacuation of the pus, which continually accumulates; again, we find that the process of granulation within the cavity has gradually lost its vigor, the surface presenting a flabby, pale, unhealthy appearance, totally incapable of cicatrization; while in occasional cases true fistulous canals remain, lined with a pyogenic membrane, which would continue permanent were not some remedial measure taken.

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* Bumstead on "Venereal."

In the first class of cases, enlargement of the orifice by incision or sponge-tents will often arrest the discharge and cause rapid repair. When, however, the cavities are large in extent, compression by means of dry sponge, tightly bandaged over the diseased locality and afterward saturated with water, will often cause union of the granulating surfaces. Setons should be run through all fistulous tracts, or an injection of some counter-irritant may be used to destroy the pyogenic membrane.

The method of dressing tissues affected with urinal infiltration may possibly deserve notice.

Disinfectants are always needed, as a putrescent and offensive urinous odor is always present. Injections of a weak solution of carbolic acid, salicylic acid, or brom. chloralum into the deeper portions of the affected part will often prevent decomposition, and thus decrease secondary inflammation. Careful washings should be given to the wounds night and morning, and charcoal poultices used to hasten suppuration, and thus loosen and separate the strings of dead connective tissue which usually protrude from the edges of the wound; while, at the same time, they rapidly hasten the separation of healthy tissue from the sloughs upon its surface.

Patients suffering from urinal extravasation soon exhibit rapidly decreasing vital power. Excessive prostration seems to arise almost instantly on the occasion of such an accident. Large bed-sores form over prominent bony points, resulting from prolonged confinement in bed and irritation from the constantly escaping urine, which often saturates the couch and its coverings. Stimulants are therefore attended with benefit if moderately administered, and at times should be given from the commencement of the disease. Unless peritonitis be present, or a complicating pneumonia, no great elevation of temperature is usually noted, nor is there sufficiently well-marked constitutional disturbance to prevent a moderate amount of nourishing food being administered after the surgical fever has subsided.

Prognosis.—The prognosis in cases of "extravasation of urine" due to urethral lesions depends greatly on the three following points:

1. Where is the *seat* of rupture?
2. How long after rupture was *free drainage* to urine afforded?
3. How extensive and in *what direction* is the infiltration, and is peritonitis liable to be produced as a complicating disease?

Causes of Death.—Exhaustion from prolonged suppuration, peritonitis, or pneumonia, are the three causes which generally produce a fatal termination.

Should cardiac lesions of an organic character be present, or any form of chronic renal disease exist as a complication of rupture of the urethra, the danger is necessarily enhanced and the prognosis grave, even if the extent of infiltration be small and the indications for treatment rapidly met.

Correspondence.

A REPLY TO DR. HUNT'S CRITICISMS.*

EDITOR NEW YORK MEDICAL JOURNAL.

DEAR SIR: Would you kindly allow me space to correct some misrepresentations in regard to some of my writings on the ciliary muscle?

These appeared in the January number of the "New York Medical Journal," and are contained in the following extracts taken from a paper entitled "A Criticism of Dr. De Rosset's Theory of the Action of the Muscle of Accommodation," by David Hunt, A. M., M. D., Boston. Dr. Hunt says: "*Dr. Loring finds a cause for the existence of the long, thick, ciliary muscles of myopia in the lengthening of the globe which occurs; he forgets that the ciliary muscle is situated upon that segment of the globe that hardly changes its radius of curvature in the lengthening that occurs in the myopic eye, that this increase is effected at the expense, principally, of the posterior portion of the globe.*" "*In the light of Loring's neglect of all*

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* "New York Medical Journal," January, 1879, p. 17.

exact observation of the specific characteristics and function of the muscle itself, and in the light of the careful observations of Iwanoff, confirmed by Arlt, Sattler, and others, we must conclude that Loring furnishes but a coarse, unscientific hypothesis, supported by no facts, and paralleled only by that of De Rosset, who, soaring above all anatomical considerations, finds a true geometric reason for the changed shapes." "*There is a sharp contrast between the methods of Iwanoff, who bases his hypothesis upon the results of extended, original researches, that have added much to our store of facts concerning the ciliary muscle, and the baseless guesses of our American colleagues.*"

I might, taking my tone from Dr. Hunt's personal comparisons, reply in the same personal strains, but I will not, as it is not against the bad taste of the above quotations, or that want of courtesy of language which is commonly used upon these occasions, but against the misrepresentations, that I wish to object.

It is true, as stated in the opening clause of the above quotations, that I did "find a cause for the existence of the long, thick, ciliary muscles in the lengthening of the globe," but I did not, as the author implies, assert it to be the only cause. On the contrary, my words are: "Without presuming to answer this question as to the cause *in toto*, it has nevertheless struck me that a very important *factor*, and one which might produce a marked effect, not only on the shape of the muscle, but also as to its appearance under the microscope, *so far as the directions of its fibers are concerned*, has been neglected in the consideration of this question. I allude to the mechanical effect of distention," etc. *

It is evident that Dr. Hunt is unaware that others besides myself have thought that extension of the globe might be a cause for the change in shape of the ciliary muscle. Thus Donders, in speaking of the anatomy of the myopic eye, says: "It [the choroid] appears, moreover, gradually to move a little over the surface of the sclerotic; thus, at least, I think, the retrogression of the iris, of the ciliary process, and of the choroidea itself, with the ciliary muscle, must be explained, in those cases in which the anterior part of the sclerotic has retained almost its normal thickness." * And again: † "In the second place, we observe that the iris and the lens are moved backward. The same is true of the *processus ciliaris*, and more than once I have seen that the *musculus ciliaris* commenced farther from the cornea than in the normal eye, and was at the same time longer, flatter, and more or less atrophic." But it is in Arlt's last brochure on myopia that this is stated most emphatically. He says: "The changes of the ciliary muscle relate in the first place to its position and form. The greater strain on the posterior line of insertion, caused by the distention of the bulb, gradually produces a displacement backward of the middle region, and also, at the same time, an extension of the angle of the muscle, which is anteriorly and outwardly connected in an inseparable way with the corneo-scleral juncture. In this way the extremities of the ciliary processes gradually assume a more posterior position. The final result is a permanent deeper position of the lens, and a permanent enlargement in the chambers of the eye. *The ciliary muscle becomes gradually broader in the direction of Schlemm's canal to the ora serrata, and the inner angle on this very account must become somewhat less acute.*" ‡

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* "Report of Fifth International Congress," p. 247.

Could anything be more exactly in accordance with what I stated? or could there be higher corroborative proof that extension of the eyeball did alter the shape of the ciliary muscle? I could go on quoting from all the standard text-books, let alone monographs, but the above is sufficient. The only wonder is that Dr. Hunt does not appear to be very familiar with the contents of the very works and authors he quotes.

Dr. Hunt continues: "He [Loring] forgets that the ciliary muscle is situated upon that segment of the globe that hardly changes its curvature in the lengthening that occurs in the myopic eye, that this increase is effected at the expense, principally, of the posterior portion of the globe."

As nothing was said one way or the other about the anterior parts of the eye, I am unable to know by just what process Dr. Hunt divined that I forgot the fact that he alleges; but I do know that it is distinctly stated in my paper that the effect *is* due to the extension of the posterior part. "Thus, if the posterior part of the eye yielded, the insertion of the muscle at its choroidal end would be drawn back, as seen in the drawing (Fig. 1), and the muscle would thereby be increased in length." *

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* Page 381. † Page 372. ‡ Page 57.

Why Dr. Hunt should accuse me of forgetting a fact which is stated in so many words, I can not explain. Some might suppose that it lay with him to do this.

Just on what authority Dr. Hunt rests his belief that "the ciliary muscle is situated upon that segment of the globe which does not change its curvature" is unknown to me, but it is certainly not a correct supposition, and not in accordance with the views of those to whom he refers so enthusiastically; that is to say, it is not in cases of high myopia, such as Iwanoff founded his views upon, and which are specifically designated in my paper. There is not a single writer of eminence, so far as I know, who does not admit that the radius of the cornea is greater in high degrees of myopia; and, as I have not the time to enumerate the citations, I would refer Dr. Hunt to the works of Helmholtz, Knapp, Jaeger, Stellwag, and a host of others collectively, merely stopping to note here what two such leading authorities as Donders and Arlt say in regard to the anterior part of the eye. "In the most highly myopic individuals a long radius of the cornea is the rule." †

"This particularly great radius with very high myopia is connected with the distended form of the eye." ‡

"There are, namely, cases in which the eye is uniformly enlarged in *almost all its axes*." §

"It now appears that the sclerotic has *everywhere* become thinner." ‖

"This we find decidedly where the *anterior* part of the sclerotic is also considerably attenuated, which is, however, by no means the rule." ¶

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* *Loc. cit.*, page 247.

† Page 368.

‡ Ibid.

§ Page 370.

‖ Page 372.

¶ Ibid.

This last refers to the fact stated again a little later, that the muscle is drawn back "even where the anterior part of the sclera has retained almost its normal thickness." *

Arlt is even more emphatic. He says: "In the sclera we find a remarkable thinning only in the medium and higher grades of myopia. This consists in a thinning caused through extension either partial or *total.* In this case we find with a remarkably great diameter of the cornea, also, that the *equatorial* diameter of the bulb is greater, and the *sclera up to the cornea transparent* (*bluish*)." †

It is simply impossible that the principal axes of a spherical body should be enlarged without changing the curvature of its limiting surface. Dr. Hunt evidently thinks the contrary, for he says: "Nature so works, that the ciliary processes develop and grow upon the anterior segment of the globe after it has taken its proper curvature." Does the curvature of a new-born baby's eye—anterior as well as posterior—always remain the same, or does it change with the growth of the rest of the body? If it does remain the same, then the arc of a segment of a smaller circle is the same as that of a larger one.

Now we come, as Dr. Hunt says, to the "sharp contrast between the methods of Iwanoff, who bases his hypothesis upon the results of extended original researches," and mine, which are founded on "baseless guesses."

No one will, I think, be more surprised than Dr. Hunt to find (for he has evidently not read one word of my paper) that these "baseless guesses" were founded entirely on the "extended and original researches of Iwanoff," that I took the trouble to reproduce Iwanoff's drawings, and that I quoted his text, word for word, and gave the references, chapter and verse, to all his work down to his latest publications, and deliberately stated that from his anatomical work I drew my conclusions.

I was utterly at a loss to understand such misrepresentation by one who was a total stranger to me, and one whose very name was unknown to me until I read his criticism. On referring again, however, to Dr. De Rosset's paper, I find that he states I had myself made some sections of the ciliary muscle. This was sufficient for Dr. Hunt. As I am simply but a practicing oculist, these of a necessity must have been bad. That they would have been bad and fit only for baseless guesses, no one more readily admits than I. The only thing is, I never made any sections of my own, nor did I ever anywhere say I had, or even imply it. On no greater pretext than this mistake of Dr. De Rosset's that I can see, Dr. Hunt publishes me to the world, in his own choice way, as ignorant of the very elements of my profession, and as a pretentious upstart and opponent of those the latchet of whose shoes I readily admit I am unworthy to unlace.

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* Page 381.

† Page 4.

It is true, however, that I did point out some glaring and direct contradictions between the work of Iwanoff in his former and in his latter papers, and it may be that he thought I ought to be punished for the presumption.

If Dr. Hunt would set himself seriously to explain these contradictions, and at the same time some of the many very remarkable statements made by himself in regard to myopia, he would, I feel quite sure, be conferring a favor upon others besides myself; and I can promise him one attentive listener and a respectful respondent.

Respectfully yours, EDWARD G. LORING.

THE CILIARY MUSCLE.

A Review of Dr. David A. Hunt's Criticism of De Rosset's Theory. By M. J. DE ROSSET, M. D., Consulting Surgeon to St. Elizabeth's Hospital, New York.

IT is unnecessary to notice more than one or two points of the article which Dr. Hunt published in the "New York Medical Journal" for January as a criticism of my theory of visual accommodation.

Sufficient reasons for a new theory were given in my original paper in the "American Journal of the Medical Sciences," October, 1878, and to that I must refer all who take an interest in the subject. It was an earnest endeavor to throw light on a confessedly obscure point in physiology, made for no vain motives, but in a fair, scientific spirit which I regret to see my critique has neither recognized nor imitated. An exposure of the errors into which he has fallen in quoting me and in his original statements is not essential to a clear restatement of my hypothesis, and they may be passed over with this simple comment.

With the exception of a brief account of the arrangement of the ciliary muscle (which I am willing to accept) he has given us nothing touching the essence of the new theory, but has attacked a number of minor points, which, although pertinent, are subordinate to the main issue, and would not affect that if they were all proved to be faulty.

I think it probable that Dr. Hunt has fallen short of such an understanding of the new theory as would enable him to apply its terms without mentally running off into the lines which the Helmholtz theory lays down. A signal instance of this tendency is evinced in his attempt to apply the new theory to the phenomena of presbyopia. The gradual recession of the near point in advancing years is quite in harmony with the supposition that the lens is flattened by traction of the ciliary muscle; for the loss of accommodation for near points is not a result of loss of power in this muscle, as Dr. Hunt erroneously assumes, but is wholly due to a loss of resiliency and hardening in the lens. This resiliency begins to wane at about ten years of age, a time of life at which it would be absurd to assume that there is any decay of muscular power. Upon each successive flattening out of the lens under the traction of the ciliary muscle, it progressively loses its power to return to the previous possible convexity. It is therefore strikingly in presbyopia that the new theory finds support. According to Donders, the flattening of the lens in adjustment for receding points is committed to "neighboring elastic parts." This is not a very happy device to round off the Helmholtz theory; for it is not reasonable to assign a delicate physiological act to the uncertain dynamics of parts which change their degree of elasticity (if they have any) with every change in their nutrition; nor to suppose that parts which lose their elasticity, and are affected in their contiguous relations by atrophy and by changes in the intra-ocular tension, shall, in old age, produce as great an effect as has ever been demanded of them.

It seems to me that this single weak point, if there were no other, in the Helmholtz theory, fully warrants an attempt to provide a better substitute for it, and that a new theory may be advanced upon a logical basis alone, without waiting for new facts, which Dr. Hunt proclaims should be its only warrant.

As much as I desire to do so in the interest of briefness, I can not pass over Dr. Hunt's allegation that I unfairly read and represent others. By referring to Donders "On Accommodation and Refraction," page 20, he will see that this author, in saying that "voluntary movements require the intervention of muscular elements," does, as I said, mean muscular *contraction* only; for in the connection in which the statement is made the adjustment (Helmholtz) for near points is under consideration.

In considering the physiology and pathology of the ciliary muscle, it would appear that its *involuntary* nature (it is composed of unstriped fibers) has not been sufficiently regarded. It is not possible to affirm that it is in a direct way under the influence of the will. It is probable that in a certian sense its movements are reflex, or at least determined by the amount of nerve impulse sent to the periglobar muscles. In making, for instance, an ophthalmoscopic examination, the adjustment of the surgeon's accommodation for ∞ is secured only when his visual axes are parallel, any convergence entailing immediately a relative and concomitant change.

The integrity of the new theory necessitates no modification of Dr. Hunt's account of the relations and attachments of the ciliary muscle. Its only fixed point is at the corneoscleral line, and toward that point must every portion of the muscle recede when contraction takes place. But the ciliary body is a portion of the muscle; it is nearer to the lens margin than is the fixed tendon, and consequently must go away from the lens when it is drawn toward the fixed tendon; and this movement must cause traction upon and flattening of the lens. It matters little to what extent of the whole muscle the zonule is attached; for, *quoad* its traction on the lens, only its attachment to the very apex (so to speak) of the ciliary body is of importance. The posterior part of the muscle may advance, and doubtless it does when the muscle contracts; and, if Dr. Hunt pleases, it may thus render the choroid tense, but this can not affect the convexity of the lens. Is it not more in harmony with general physiological economics to suppose that the definite *vis viva* of the lenticular resiliency is opposed by a definite muscular energy than it is to hold that it is opposed only by the unstable elasticity of neighboring parts?

How can an elastic force be transmitted to the lens in definite quantity through the medium of relaxed and, therefore, yielding muscular tissue?

I need not stop to discuss the question of asthenopia, this has been fully done in my original paper, where I have attempted to show that asthenopia proceeds not from fatigue of the ciliary muscle, but from nervo-muscular incoördination, or from pressure of the periglobar muscles upon the bulb. In hypermetropia it is due chiefly to incoördination, but resistance of the external rectus *may* produce a part of it through the resulting compression of the globe between it and its opponent.

It has not been easy to arrive at a clear idea of what Dr. Hunt means by a tendency to "consider the ciliary body as an indifferent whole, subject to purely mechanical laws." Indifferent to what? I regard it as being anything but indifferent; for, possessing as it does such a large proportion of muscular fibers, it must play a preponderating rôle in the physiology of the muscle of which it forms a part. Does Dr. Hunt deny that it is subject to purely mechanical laws, and that it contains muscular fibers which participate in the accommodation?

Dr. Hunt rather briefly dismisses that part of my argument based upon the phenomena of atropia and eserine. If it be allowed to reason in reference to the ciliary muscle from the action of these agents upon its congener, the iris, much support will be obtained for my theory. The traction which atropia causes the iris to make upon posterior synechia implies a state of tension, unlike its condition when a broad expanse of the muscle (as in myosis) is exposed, for in this there is evidently a relaxation, the iris hanging loose like a curtain, and readily falling into any accidental perforation of the cornea. If I may hazard a conjecture, as yet only supported by coarse examination, I would say that, strictly speaking, the fibers of the iris are neither radial nor circular, but that they are arranged in parabolic or elliptic curves (the convexities toward the pupil), which give the beautiful reticulated appearance to the iris, and enable it to describe the to-and-fro movements now attributed to two distinct sets of fibers. I think that the histology of the iris requires new investigation, for it is certain that some irides which are very sensitive do not possess radial fibers, and it is easy to see how in the small field of the microscope an arrangement in parabolic curves might make it appear as if there were two independent sets.

Clinical Reports of the Demilt Dispensary.

DEPARTMENT FOR DISEASES OF CHILDREN.

KUMYSS IN THE INTESTINAL DISORDERS OF INFANTS AND YOUNG CHILDREN.

By P. Brynberg Porter, M. A., M. D.

Last summer, my friend Dr. A. A. Smith sent to me, with a note of introduction, Dr. E. F. Brush, well known in connection with the manufacture of kumyss, who was desirous of having a trial of this remedy made in the intestinal disorders of infants and young children, and especially those diarrhœas so frequently met with in the summer season, commencing with green passages. Accordingly he very kindly placed at my disposal as much kumyss as I might require for use in the Dispensary. I had not previously had my attention called to its employment in this connection; but it was with great pleasure that I undertook to test its effects, for I believe it to be the duty of the profession to make use of every agent that is likely to be of even the slightest service in reducing the extensive infant mortality which always presents such a melancholy feature of the summer history of our great cities. During the months of July and August I employed it in a considerable number of cases of the above description, and I can not refrain from saying that I was much delighted with the results obtained; for in every instance it acted in the most satisfactory manner in checking the disease and restoring the alimentary tract to its normal condition. The only objection that I can see to its use is the difficulty of getting some children to take it; but in my experience I have found that usually this is easily overcome when the patient has taken two or three doses, while not infrequently the children drink it with the greatest avidity.

I will now briefly relate four of my cases, which I think will be sufficient to show the effect of the remedy, as the citation of a larger number would only make a tedious repetition.

Case I. *July 9th.*—John R., aged two years and ten months. Has had non-inflammatory diarrhœa, with numerous and intensely green passages, since July 5th. I ordered three bottles of kumyss, which were to be kept on ice, or in as cold a place as possible, and that the child should be given a small quantity of the remedy about every three hours. All other food and medicine were positively prohibited.

13th.—The mother expressed herself as delighted and surprised at the action of the kumyss. It at once had a beneficial effect upon the frequency and character of the discharges, and by the time the second bottle had been used there was no diarrhœa whatever. The third bottle was given by way of precaution, however, and to-day the child is apparently perfectly well. In this case the mother stated that she found it pretty hard to get him to take it.

16th.—The child still continues to do well in every respect, and there has been no return of the diarrhœa since the kumyss has been stopped.

Case II. *July 13th.*—Thomas M., aged one year and nine months. Acute indigestion, with diarrhœa. Passages very watery, but not green in color. Ordered an emulsion of castor-oil, with a little paregoric and oil of anise.

20th.—The child was not brought back until to-day, although the medicine had but little effect upon the disease, which now seems to have run on into entero-colitis. Ordered powders of subnitrate of bismuth, bicarbonate of sodium, and Dover's powder.

23d.—The bowels worse than ever, and the passages now very green. The child had not been able to retain the powders prescribed. Ordered kumyss, as in the last case, together with the suspension of all other food and medicine.

27th.—The mother states that the remedy at once had a favorable effect upon the passages. They were not nearly so frequent as before, and the green color immediately disappeared. On the 25th the child was taken on one of the excursions of the St. John's Guild floating hospital, and since then he has had no fever, and has improved in every way. The kumyss gave out a day or two ago, but the passages have continued to be of a natural color. Although the bowels are still somewhat loose, the mother says they are not moved one tenth as often as before the kumyss was taken. Ordered the remedy to be resumed, without other food or medicine.

August 3d.—As soon as the child commenced taking the kumyss again, the diarrhœa disappeared, and there has been no return of it since. He has markedly improved in every way, and looks fifty per cent. better than before.

Case III. *July 18th.*—Ellen McG., eight months old. The child is nursed at the breast, and I can not learn that it has had other food, though this is very probably the case. For the last two weeks it has been suffering from entero-colitis, which the castor-oil emulsion before mentioned has failed to arrest. The passages are now intensely green, but there is no vomiting. The infant being much exhausted, I told the mother to give it a little brandy from time to time, and ordered two bottles of kumyss for it. It was also to be allowed to take breast milk in small quantities, but, of course, nothing else.

August 1st.—The mother not having reported at the Dispensary as requested, I called at the house, and ascertained that the color of the discharges was at once changed by the remedy, and that they soon became of normal consistency and frequency. Recently, however, there has been a return of the diarrhœa, and consequently I ordered more kumyss.

September 9th.—Heard nothing more of the case until to-day, when the infant was brought to the Dispensary for a slight attack of bronchitis. The mother states that the diarrhœa was a second time at once checked by the kumyss, and that there has been no return of it since.

CASE IV. *August 8th.*—James G., aged two years. Has had entero-colitis the greater part of the summer. Last evening the mother became alarmed about him, as the bowels became a great deal worse than before, and he was also attacked with vomiting. The passages are of a bright-green color. Ordered three bottles of kumyss.

10th.—The mother says she could not get the child to take the kumyss, and that he is no better. Accordingly I prescribed other remedies.

24th.—The case was not reported until to-day, when the mother says that after she was at the Dispensary the last time she succeeded in getting the child to take the kumyss very well, and that by the time the third bottle was used up he was so much improved in every way that she did not think it worth while to bring him back any more. He now looks very well indeed for a child that has had diarrhœal trouble for so long.

The following case is reported to me by Dr. Brush: A child eight months old, of scrofulous diathesis, which was bottle-fed and suffering from malnutrition, was affected with summer diarrhœa. The passages from the bowels averaged five *per diem*, the discharges being light-colored, soft, and extremely offensive in character. It was given kumyss, all other food being excluded, and the frequency of the passages was reduced to two a day, while they became thick, white, and free from odor. It was given the kumyss for some days, after which its ordinary diet of diluted cow's milk was resumed, and subsequently there was no further trouble.

I might quote other cases, but these, I think, will be sufficient to show that kumyss has a most prompt and admirable effect upon some forms at least of the summer intestinal disorders of infancy and young children; and, although more experience is needed in its use, I can not but feel that in it a most valuable agent has been added to our means of successfully contending with such disease, and that its more general employment in this class of affections will be followed by the most happy results. As it acts both as a food and as a remedy for the disorder present, its advantages are obvious; and I regard the small amount of alcohol which it contains, in a state that can be immediately appropriated by the system, as of very considerable service in promoting absorption and secretion, in stimulating nervous action, and in lowering the temperature of the body. Of course, in every instance, the most careful attention is to be paid to the hygienic condition and surroundings of the child; and, unless this is done, no remedy whatever is likely to be of much service.

In reply to a note of mine, asking for some expression of his views in regard to the action of kumyss in the diarrhœa of children, Dr. Brush has addressed to me a very interesting communication, in the course of which he writes as follows:

> In the first place, it is to me a fact conclusively demonstrated, that all diarrhœas of infants commencing with green discharges are due to the non-digestion of sugar; and, secondly, I believe that the larger percentage of intestinal disturbances in bottle-fed children is due to the unfixed condition of the casein: that is, the casein is in a fit state to undergo rapid change, notably, the hard coagulation due to lactic fermentation, followed by putrefaction. For instance, city milk, when delivered to the consumer, is ordinarily from thirty-six to forty-eight hours old, by which time lactic fermentation has always commenced. When milk of the above age does not affect the litmus, its acidity has been neutralized by the addition of lime or soda, and this neutralization, by the way, increases the action of the lactic ferment. When the milk reaches the stomach, where the temperature is increased to above 95° Fahr., the most favorable degree of heat for lactic fermentation, the latter becomes very rapidly complete, and the hard, indigestible coagulation takes place. After lactic fermentation is complete, putrefactive fermentation immediately follows. This is the condition when vomiting occurs, and any of the casein which reaches the intestinal tract acts as an irritant, on account of the putrefaction that is taking place.
>
> Now, the beneficial effect of kumyss in diarrhœal diseases is accounted for, first, by the total absence of milk-sugar which characterizes it, this principle having been broken up into alcohol, which answers the double purpose of being a hydro-carbonaceous food and of promoting absorption; secondly, by the fixed condition of the casein. In kumyss

we find this principle finely subdivided, ready for absorption, incapable of being coagulated, or, under ordinary circumstances, of undergoing putrefaction. Last summer I took a specimen of kumyss and the same quantity of the milk from which the kumyss was prepared, and placed them both in open vessels in a window, the weather being very warm. When, after a few days, I examined them, I found the milk alive with maggots about an inch in length, and giving off a very offensive odor, while the kumyss was practically unchanged, there being no evidence of life about it, the taste being that of ordinary kumyss, and the odor simply that of new cheese.

In regard to the action of kumyss in cholera infantum, I have had no experience, unless Case IV. is to be regarded of this nature (the attack supervening upon enterocolitis of long standing); but I should expect to obtain excellent results from it in any case in which its administration was not delayed too long. In confirmation of this opinion, I am happy to give the following report of a case which Dr. Brush has kindly sent me:

As to the action of kumyss in cholera infantum, I will cite one case, which is illustrative of the care necessary in its administration, as well as the benefit derived from it when it is properly exhibited. The child was five months old, bottle-fed, and suffering from cholera infantum, third day. On a Saturday my friend Dr. Campbell sent the father to me, with a note asking me to give him some kumyss, with directions as to its use. Accordingly I did so, making the directions as explicit as possible. In the evening, however, the father returned, saying that the child could not retain the kumyss; so, having the doctor's permission to do so, I accompanied him to the house, to see about the matter myself. I found the infant almost in a state of collapse, having had twenty-four passages during the day, up to 5 P. M., and constant vomiting in addition. The parents, not following the particular directions given, had used their own discretion in administering the kumyss; that is, having tasted the liquid upon opening the bottle, and thinking it too sour and cold, they had actually sweetened and warmed it. As might have been expected, this had increased the nausea and vomiting to such an extent that it was very difficult to give it the kumyss in a proper manner. At first the simple approaching of the child's mouth with the spoon excited emesis, but with perseverance I succeeded in getting down two teaspoonfuls, which were retained. In half an hour two more teaspoonfuls were given, and these were also retained; after which we continued to administer the same quantity every half hour until about four ounces had been taken. From the first dose there was no more vomiting, and I then took my departure, after directing the parents to follow out the same plan of treatment.

When I visited the child on Sunday morning, I found that, although, it had not improved very much in appearance, there had been a marked abatement of the symptoms, the diarrhœa being very much better, while there had been no vomiting whatever since I had been there the previous evening. During that day it took a bottle and a half of kumyss, and did not have a single passage until night. After that it slept well, and rapidly increased in strength, taking three bottles (pints) in the course of every twenty-four hours. On Tuesday and Wednesday there was no movement of the bowels at all; but subsequently the child always had one or two passages a day. The next Saturday we considered it well enough to go back to its ordinary food of cow's milk, and it has continued to do well up to the present time.

Kumyss is recommended not only in the intestinal disorders of children, but also in all diseases characterized by defective nutrition; and the following rules should be observed in its administration:

In giving kumyss to children under one year of age, always empty the contents of the bottle into a pitcher, and from that into another, and so continue to pour it back and forth until all, or nearly all, the gas is eliminated—say for about ten minutes. Then take what is necessary for one dose, and pour the remainder back into the bottle, cork, and keep in a temperature between 50° and 60° Fahr. By thus always corking and placing the bottle in a cool place after taking the dose from it, it is possible to keep it for twelve hours.

It should never be warmed, sweetened, or diluted under any circumstances whatever, nor should it ever be given less than two hours after the administration of any other form of milk.

Children from three weeks to three months of age suffering from any form of defective nutrition, and children over three months suffering from diarrhœal disease, should be given about one teaspoonful every hour for the first twenty-four hours; and it is usually best to give these small doses from a spoon. Children over three months of age not suffering from diarrhœal disease can take kumyss from a nursing-bottle; and about half the quantity which they have been accustomed to take of other food will be sufficient. Ordinarily, children need it for one or two weeks at a time, and when it is discontinued no food should be given until two hours after the last dose of kumyss.

In conclusion, I will say by way of caution that, on account of the numerous formulæ for kumyss which are now being published with directions for its preparation, in which the casein is not modified and the milk-sugar not destroyed, Dr. Brush proposes the following simple tests for true kumyss: To ascertain if the casein is coagulable, add dilute hydrochloric acid, and, if this precipitates the casein, the mixture has not been properly prepared.

To ascertain if the milk-sugar has been destroyed, boil and fill a test-tube with the liquid; then add a little yeast, and invert the tube in a saucer of water, as in the fermentation test for sugar in urine, when any fermentation taking place gives evidence that the mixture has not been properly prepared.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, November 21, 1878.

Dr. S. S. Purple, President.

Laparotomy in Abdominal Pregnancy.—Dr. T. G. Thomas reported the results of laparotomy in extra-uterine pregnancy, and suggested as an important point in treatment that the placenta should not be forcibly removed at the time of operation, but that the sac should be thoroughly drained and washed out with antiseptic injections till the placenta came away, or till such time as treatment became unnecessary.

Six cases were reported. In two, discharge of fœtus took place through the rectum. In the third, the patient was operated on at the eleventh month of utero-gestation. When she came under observation, there was an abdominal tumor with an intra-uterine measurement of three and a half inches. The cyst was tapped, but there was nothing found in the fluid to indicate that it was other than an ovarian cyst. The diagnosis was based upon the usual history of pregnancy with distinct fœtal movements, but an empty uterus and the presence of a large solid body moving freely in the abdomen. An incision was made in the cyst and the fœtus removed. The placenta could not be seen. Dr. Thomas decided not to attempt to remove it for the reason that, when he had done so in other cases, the hæmorrhage was so great as to endanger the life of the patient. A drainage-tube was inserted. The case did well for fourteen days, when the temperature rose to 104° Fahr. The cavity was examined and a clot found. Antiseptic injections were used regularly, and no further trouble occurred till the fifth week after the operation, when the placenta was found presenting at the wound. It was removed by careful manipulation.

The fourth case was somewhat similar, and was operated on at the Woman's Hospital. The placenta was attached to the bladder and abdominal wall. Portions of the placenta came away during her stay in hospital. She was discharged with instructions to continue the injections. Eventually the remainder of the placenta was discharged.

The fifth case was also operated on at the Woman's Hospital. The sac was lacerated in the forcible removal of the bones. Dr. Thomas said that in future he would only remove such portions as would come out easily, leaving the others to break down and discharge.

The sixth case was one in which the diagnosis had been made, but no operation so far attempted.

Dr. Thomas thought that operation procedures should be delayed till nature indicated the method of removal, or till there was every reason to suppose delay would be dangerous.

In regard to the time for the operation, it was usually better to wait till the full development of the child, and if the mother was carrying a dead child, the longer the placenta was allowed to remain the less danger there was of hæmorrhage, and the more atrophied the fœtal shell became the less danger there was of septicæmia.

Dr. W. T. Lusk referred in a very complimentary way to Dr. Thomas, and said the sex was under an additional obligation for the suggestions which he had brought forward for the treatment of abdominal pregnancy. The view advanced that it was better to wait was not in accordance with that held by many, but the results obtained proved the correctness of it. Reference was made to a case of extra-uterine pregnancy, in which an incision was made into the abdominal cavity, and the sac in a very vascular condition was found. It was opened and the fœtus removed. The patient recovered after suffering severely from septicæmia. She died three months subsequently from phthisis.

Dr. Fordyce Barker said that the views proposed by Dr. Thomas would entirely change the treatment of abdominal pregnancy, and that the statistics of the past would have no force in considering the future care of cases. It was generally held that much danger was to be feared from removing the placenta, but the antiseptic injections lessened greatly the risk of allowing it to remain *in situ.* Dr. Barker referred to several cases in his own practice where nature effected a cure, the detritus of the fœtus passing through the rectum and abdominal walls.

In 1854 he saw at the State Medical Society a fifty-year-old baby. The mother became pregnant in 1802. At the end of her term she had labor pains, and during thirty years recurrent symptoms of labor took place. The mother died in 1852. During the last twenty years of her life she was in good health. The fœtus weighed six and a half pounds. The cyst was cartilaginous and included an arm and a leg.

Stated Meeting, December 19, 1878.

Dr. S. S. Purple, President.

The Indications for Operation in Laceration of the Cervix Uteri.—Dr. Paul F. Mundé read a paper on the above subject, and exhibited twelve colored drawings of different conditions under which the lacerated cervix may appear. He said the first to devise and carry out the proper operative treatment for laceration and eversion of the cervix was Dr. T. A. Emmet. His first operation was performed November 27, 1862, in the presence of Dr. T. G. Thomas and Dr. G. S.

Winston, and since that time the subject had been only imperfectly understood till recently. A paper read by Dr. Emmet before the Medical Society of the County of New York in 1869, and another in 1874, drew general attention to the subject. The main purpose of Dr. Mundé's paper was to suggest operative procedure on a class of cases hitherto not supposed to require such interference.

First.—Slight lacerations which usually give no trouble, but which become ulcerated from friction on the posterior vaginal wall when the uterus was subinvoluted and depressed.

Second.—Slight lacerations, even if not ulcerated, occurring in subinvolution, and seeming to be the cause of it, the enlarged uterus proving intractable to treatment.

Third.—Cases of cystic ectropium of one lip, in which the ulcerated surface takes the place of the lip.

Fourth.—Laceration of the endocervical mucous membrane with but slight change in the os beyond being patulous. In this condition endocervitis of an obstinate character occurred.

Fifth.—Large follicular erosions of the cervix that were difficult to heal.

Dr. EMMET thought that some points were omitted in the paper. He had found laceration more frequent among the rich than the poor. Of all uterine cases that had come under his observation since 1862, laceration was found in thirty-five per cent. If the laceration was in the median line, anterior or posterior, the edges were kept in position by the surrounding tissues, and they healed without difficulty. When the laceration was lateral, however, and extended to the vaginal junction, there existed a tendency for the tissues to roll out when the patient assumed the upright position. The posterior flap caught on the posterior vaginal wall and passed into the *cul de sac.* The anterior slid along the vagina, the direction of least resistance. Nature attempted to cure such cases by filling the gap with cicatricial tissue. The effects of cicatricial tissue on the cervix had never been fully appreciated. It was well known that the sympathetic presided over generation and nutrition, and, although the cervix had fewer blood-vessels and nerves than the fundus, it was covered with erectile tissue, and where there was erectile tissue there were fibers of the sympathetic accompanying the blood-vessels. The presence of dense tissue on the cervix played an important part in producing anæmia by affecting nutrition. When the menopause occurred, nature took up the cicatricial tissue, and it was thus explained how patients anæmic before became healthy after the menopause was passed. The same result occurred when the cicatricial tissue was removed from the cervix by an operation. From his observations he was convinced that epithelioma was closely connected with the puerperal state, for he had not seen a case, nor had he found any one who had seen a case, occurring in a multiparous uterus. He had seen two cases which at first seemed an exception to the rule; but on inquiring more closely it was discovered that criminal abortion had been performed on each. He had seen the epithelioma springing from an old laceration, and strongly inferred that the laceration or cicatricial tissue was the starting-point of the disease.

Dr. Chamberlain agreed with Dr. Mundé that, if the cervical lesion was more readily cured by operation, there was no valid argument against it. He had found much difficulty in being assured that the whole of the surface of the laceration was denuded during the operation when blood was oozing from the cut surfaces. This was greater the higher the uterus was in the pelvis, and less the nearer it was the outlet. To bring the uterus under control he had in some cases passed a suture through the cervix. The course of the suture was beneath the laceration. By an incision into the angle the suture would be laid bare, and could be drawn forward by a tenaculum. The double loop thus formed readily controlled the cervix. After denudation the loops formed the first and most important sutures applied in closing the flaps.

Dr. Gillette thought the operation had become so popular that it was performed in unnecessary cases, the fact of the presence of a laceration without pathological symptoms being deemed by many sufficient to sew it up.

He had recently used a rather novel method of bringing the sides of the cervix together and applying compression. A tenaculum was introduced into either side of the laceration, and over the handles a rubber was slipped down on the cervix. After a week he found that the compression had acted in a very favorable manner.

Dr. H. T. Hanks had found, by consulting the books in his department at Demilt Dispensary, that the percentage of laceration of the cervix was less than when he reported it in 1874, when Dr. Emmet read his paper before the County Medical Society. The percentage then was between 8 and 9; now it was 6. He thought it might be due to the fact that young physicians kept their patients longer in bed.

In regard to a question suggested by Dr. Gillette as to the means of preventing laceration, Dr. Emmet said that he had no personal experience. He was satisfied, however, that, if the patient were treated by vaginal injections of hot water, many cases could be prevented from coming to a surgeon for operation. He had seen a vesico-vaginal fistula of large size closed by no other treatment, and he thought that, if uterine injections were employed in recent lacerations, the uterus would contract more firmly, and the laceration would readily heal.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, January 22, 1879.

Dr. E. L. Keyes, President.

Punctured Wound of Cranium.—Dr. Briddon presented a specimen of skull obtained from a man aged sixty-one. He was admitted to the Presbyterian Hospital January 11, 1879. While walking in the street he was hit by a falling brick and became insensible. He rallied in a few minutes, but found that he had no vision in his left eye. In a short time, however, it returned. There was a linear wound of the scalp an inch and a half long, extending from the vertex to an inch to the right of the median line. The skull beneath was fractured in the form of a semicircle. The convex border was driven beneath the inner table of the adjoining bone, and impacted between the fragments was a lock of hair. The *rongeur* was applied, and an opening made large enough to admit an elevator. The depressed bone was then detached. The margins of the bone were made smooth and the wound dressed with proof spirit. He did well till January 14th, when he had a chill, followed by fever and headache. The pupils were contracted, with slight intolerance to light. Headache continued till January 17th, when it was aggravated by attacks of vomiting. Dullness also appeared which deepened into stupor.

January 19th.—Pulse, which in the early period of the disease was over 100, had fallen to 80. The dura mater was found bulging in the wound, but without pulsation. An incision was made in it, and a small amount of pus escaped with slight hæmorrhage. During the flow of blood the contracted pupils dilated, and the stupor passed away. It soon returned, however.

20th.—Severe chill. Involuntary discharges and retention of urine. Coma profound. No reflex movements on the right side. Twitchings of the face, but no general convulsions. His condition remained without change till January 21st, when he died.

Autopsy.—On removing the calvarium the sinuses were found injected. A layer of false membrane covered the left hemisphere, and was adherent to the parietal arachnoid. The pia mater was injected, especially on the side opposite the injury, and on that side was an accumulation of greenish pus in the subarachnoidean tissue. Evidences of inflammation were least on the side of the injury. There was no pus near the wound.

In regard to the operation of trephining, Dr. Briddon said there had been two successful cases at the Presbyterian Hospital, but the general experience was very disastrous. In the hospitals of Paris, no recovery was recorded in ten years. In the case presented, there was a strong suspicion that there was a deep abscess from the bulging of the wound, but at the autopsy this proved not to be so.

Ununited Fracture.—Dr. R. F. Weir presented a specimen of ununited fracture of the femur removed from a man who died at the New York Hospital. Fourteen months before admission, he sustained the fracture, and after four months' treatment there was a shortening of two and a half inches, but no union. On admission to hospital, the ends of the bones were rubbed on two separate occasions, but no union resulted. Brainerd's drill was then used, and a portion of the drill remained in the bone. Erysipelas commenced at an excoriation of the bone, became phlegmonous, and extended over the limb. Death took place from exhaustion.

The autopsy showed that any operation short of exsection would have proved useless, as a pseudarthrosis existed. The knee-joint was infiltrated with pus. There was no osteomyelitis from injury to the bone.

Supra-pubic Lithotomy; Death.—Dr. E. L. Keyes presented specimens of stone which he had removed by the high operation from three patients. In each case death occurred. He was induced to try that operation from favorable articles which had recently appeared in the journals on the subject. The method of its performance consisted in the introduction of a sound pushing up the bladder, cutting down through the skin and abdominal walls, securing each side of the bladder by means of sutures, making an incision in the median line, and extracting the stone. The operation in either case lasted but a few minutes, and was attended with the loss of not more than ʒj of blood. Subsequently a drainage-tube was inserted in the lower angle of the incision and the wound sewn up. A convolvulus catheter was introduced to insure perfect drainage. Notwithstanding the rapidity of the operation and the precautions taken, each patient died.

The first case was a man aged seventy-five. Lithotrity was attempted, but the hardness of the stone rendered crushing not feasible. One month subsequently, supra-pubic lithotomy was performed. On the third day, pain occurred in the side of the abdomen near the wound. This was accompanied by high temperature, and in a short time death took place. No autopsy was obtained. The second case was a man aged seventy-three. Lateral lithotomy was performed sixteen years previously by Dr. Van Buren, and six stones removed. The patient had not taken the proper precautions in washing out his bladder after the operation. Dr. Keyes found on examining the bladder the presence of a stone. There followed, however, the examination a severe attack of cystitis. Subsequently, with the assistance of Dr. Sands, the lithotrite was introduced and the calculus crushed with one stroke. The cystitis which resulted caused so much distress that the patient asked for an operation that would relieve him from further suffering. The high operation was performed. Death occurred in seven days. There was no suppression of urine. The third case was of a man in Bellevue Hospital who had suffered from stone for ten years. Crushing was attempted by a new French instrument, but the clogging of the lithotrite rendered it unsuccessful. The urethra was divulsed in withdrawing the clogged instrument. The high operation was performed after two or three weeks. Death occurred on the second day. The autopsy revealed multiple abscess of the kidney. Dr. Keyes said the first case was a favorable one for the lateral operation, but he questioned whether the other two cases would have done well under any circumstances.

Dr. R. F. Weir wished to know the advantages of the high operation over the lateral, if in the former the bladder was punctured for the introduction of the convolvulus catheter.

Dr. Keyes said there were none, other than the ease and rapidity of its performance.

Cyst Adenoma of Breast.—Dr. C. C. Lee presented a cyst adenoma of the breast which he had removed at the Woman's Hospital from a married woman twenty-one years of age. It appeared nine months ago as a small node, and increased during pregnancy. After delivery, the advance was more rapid. There was no retraction of the nipple. The extirpation of the growth was deemed expedient from the dread which the patient had of cancer. The tumor proved to be an adenoma which had undergone cystic degeneration. The mammary gland was not involved.

Lithotrity; Bigelow's Method; Death.—Dr. R. F. Weir presented fragments of a stone which had been removed from a patient by Bigelow's operation. Death occurred a month afterward. The man was seventy-three years of age, and had symptoms of pyelitis lasting for three years. The operation consisted of two crushings with washings, and lasted forty-five minutes. For six days he did well. On the eighth day had a chill followed by fever and pain in the lumbar region; on the ninth day diarrhœa. The autopsy showed multiple abscesses in the right kidney, with cystic disease of the left.

Dr. Weir said that two deaths had occurred in this city from Bigelow's method, and so far, of the thirty-four cases, the whole number operated upon, there were three deaths.

Dr. Keyes thought that Bigelow's operation was preferable to any other that had been brought forward.

Acute Osteitis.—Dr. C. Heitzmann exhibited microscopic specimens illustrating acute osteitis. He said inflammation could best be studied experimentally on compact bone, by applying to it a hot iron. With the reaction in the vascular system there was a reaction in the tissue itself. The lime salts were dissolved out in certain territories around the bone corpuscles. Then the basis substance was liquefied, and the protoplasmic condition of the bone tissue reëstablished. The network of living matter being present also in the calcified basis substance, on the liquefaction of the basis substance the embryonal state of the bone was reëstablished. By increase of the size of the granules of living matter, new medullary elements originated, which represented inflammatory infiltration. By the eighth day, the compact bone was transformed into cancellous structure. The medullary elements were connected with each other by delicate threads of living tissue. When the threads ruptured, the elements became isolated, and pus corpuscles resulted, or, in other words, an abscess.

Dr. Heitzmann said that Stricker considered all inflammatory elements as pus corpuscles, but he did not coincide with him, and held that even the inflamed tissue remained a tissue with union of all constitutional elements. This view corroborated the old doctrine that there were two varieties of inflammation, the plastic and the suppurative.

THERAPEUTICAL SOCIETY OF NEW YORK.

The fifth Stated Meeting was held December 13, 1878, Dr. E. R. Squibb, Vice-President, in the chair.

The Committee on Surgical Procedures and Appliances, through its Chairman, Dr. R. F. WEIR, presented the following report:

GENTLEMEN: The attention of the Committee over which I have the honor to preside has been given at its last two meetings to the consideration of the following questions: First, as to the inhalation of ether carried to the stage of "first insensibility"; and second, concerning the result of the injection of carbolic acid into hæmorrhoids and other vascular tumors.

In reference to the first of these questions, the source whence most of the knowledge of this first stage of insensibility from ether is derived was an article published in the July number of the "American Journal of Medical Sciences," 1877, by Dr. John H. Packard, of Philadelphia, in which, under the title "On the First Insensibility from the Inhalation of Sulphuric Ether," he presented five cases wherein incisions for various abscesses were made, and a dislocation reduced, without any pain being felt by the patient, and with almost immediate return to consciousness when the inhalation was suspended. This fact he observed and published as early as 1872. Dr. Packard's directions were as follows: "If, when a patient begins to inhale the ether vapor, he be told to hold up his hand, and the direction be repeated as often as necessary, for a little while he will obey; but soon there will be a failure of voluntary power, and the hand will drop. At this instant there begins a very brief period—less than a minute—of total insensibility. If the inhalation be now suspended, consciousness will return at once, and the patient will come to himself without headache, nausea, or any other of the disagreeable effects so commonly experienced after the prolonged administration of the anæsthetic. During this brief period of anæsthesia—the 'first insensibility' as I have called it—any operation may be performed as painlessly as if the inhalation had been carried to its full extent."

A number of cases have been reported confirmatory of the statements of Dr. Packard, but certain differences were observed. No question as to the satisfactory degree of anæsthesia exists, but the duration of it in several instances exceeded the time allotted to it by Dr. Packard—occasionally reaching to three minutes; also, while all recollection of pain was done away with, yet at times the patients would by movement, and sometimes by cries, give evidence of sensation during the incision; and, still further, it was noticed by Dr. W. T. Bull and myself that, even when the insensibility was marked, muscular relaxation was ofttimes insufficient to permit of a reduction of a dislocation or a displaced fracture.

The following cases bearing upon this question were contributed by Dr. A. H. Smith:

CASE I. January 17, 1878.—Miss ——, patient of Dr. Robinson. Ether given by me while Dr. Robinson removed hypertrophied mucous membrane from turbinated bone. The administration was continued for five or six minutes, but with interruptions, and the operation, a very painful one ordinarily, was performed before the occurrence of the stage of excitement, and while there was no approach to muscular relaxation, the patient sitting upright in a chair. There was complete return of consciousness in less than two minutes, and the patient stated that she had felt no pain.

Case II. November, 1878.—Master P., aged ten years, a patient of Dr. A. E. M. Purdy. The operation the same as in the preceding case. Ether administered slowly and with many interruptions, the patient talking continuously. When his utterance became thick and the words incoherent, but before the stage of excitement came on, the hypertrophied mucous membrane on the turbinated bones was seized with forceps and twisted off, first on one side and then on the other, the operation occupying scarcely thirty seconds. There was very profuse bleeding, and the patient's head was immediately bent forward over a basin. Within a minute he was able to maintain this attitude without assistance, and all incoherence of speech had disappeared. There was no evidence of pain during the operation, and the patient declared afterward that, though he knew what we were doing, it did not hurt him.

Case III. December 6, 1878.—Miss J., aged twenty-two. Operation for ingrowing toe-nail. About two drachms of ether were poured upon a towel, which the patient held to her face. In about half a minute I noticed that her pupils were widely dilated. She then removed the towel, declaring that the ether was not affecting her. She resumed the inhalation, however, on being told sharply to do so, and in a few seconds more I performed the operation in the usual way, dividing the nail with a scissors and tearing out a portion with a forceps. I then snipped off a mass of granulations which had grown over the nail, together with a portion of the adjacent hypertrophied skin. There was no movement or exclamation whatever indicating pain. Within two minutes all effect of the ether had passed off. The patient stated that she knew I had cut twice, but that she felt no pain. The condition would thus seem to have been one of analgesia with preserved tactile sensation.

Case IV. October 15, 1878.—Mr. L., fifty-five years of age. Encysted tumor of scalp, size of a nutmeg. Patient held a towel wet with ether to his face with one hand, while the other hand was held in the air. When this hand began to waver, the tumor was transfixed, and the skin over it divided with one movement of the bistoury. The base of the sac was then seized with forceps and the entire sac evulsed. The operation occupied not more than fifteen seconds. The patient gave no sign of feeling whatever, and on recovering consciousness, which he did in less than a minute after, remarked that he had felt something like the scratch of a pin. The anæsthesia seemed to be quite as complete as that from nitrous oxide, and the recovery from it was quite as prompt.

Case V. occurred at the Demilt Dispensary. Ether given for the extraction of teeth, which was done by the apothecary. The patient was a boy sixteen years of age. Dr. Riley, who was present, timed the administration. The inhalation occupied thirty-eight seconds, when the tooth, a large molar, was extracted. Within sixty seconds of the beginning of the inhalation, all apparent effect of the ether had passed off. There was a movement as if of pain at the moment of the operation, but the patient said that he felt very little pain, though conscious of all that took place.

Case VI. was that of a woman aged sixty-six. She inhaled the ether for forty seconds, when the tooth, a bicuspid, was extracted. She showed very little sign of pain, but declared that it hurt her as much as other teeth which she had had extracted without an anæsthetic. There was scarcely any visible cerebral effect from the ether, and probably, if the inhalation had been continued ten or twenty seconds longer, the result would have been more satisfactory.

Case VII. was that of a man aged thirty-two. He was in a very nervous condition, and very glad to take something to escape pain. He had two teeth, both molars, to be extracted. He inhaled the ether for forty seconds, when the first tooth was removed. He stiffened out, and made loud exclamations of pain, but when asked if it hurt him, answered, "Yes, a little." He was trembling, and very much excited. After a few minutes he inhaled the ether again, this time for sixty seconds. During the last half of the time, the body was rigid, and the legs moved rapidly from side to side, presenting an exact picture of an hysterical paroxysm. At the moment of the extraction he threw himself backward, nearly overturning the chair, and for nearly a minute after he continued to struggle as if in a fit. In about two minutes he recovered consciousness, and said that he had felt nothing whatever. It was fifteen minutes before the trembling and excitement had so far subsided that he was able to leave the room.

Case VIII. Reported by Dr. Janvrin, January, 1874.—Patient, a male adult, suffering from a large carbuncle, sat in chair, holding the ether himself, and had incision made without any pain. Remarked, after the operation, that he felt nothing at all. The whole proceeding lasted only about one minute. In reporting this case, Dr. J. remarked that this method had been suggested to him by the late Dr. Peaslee six or seven years ago.

Case IX. Reported by Dr. Shaffer, December 4, 1878.—The operation was a subcutaneous division of tensor vaginæ femoris. The ether was administered, and on the approach of the first stage of insensibility the knife was introduced, and some cutting done; but before this was completed—over a minute—this stage passed off, and the ether had to be pushed to complete anæsthesia. Dr. Shaffer subsequently referred to a similar case, in which he had attempted subcutaneous section of the tendo Achillis in a young girl with like unsatisfactory results.

Case X. Reported by Dr. Weir.—Painful abscess over external ankle, the result of a sprain; treated in the New York Hospital. The house surgeon on December 4th administered ether, and made an incision just after the first choking sensations had subsided, and before the arm, which was raised trying to push away the cone, had relaxed. The antiseptic precautions were observed, but the carbolic spray was not directed to the parts until the incision was ready to be made, in order not to interfere with the test of primary anæsthesia. The ether cone was removed as soon as the incision was made, and in three seconds the patient returned to consciousness; did not know anything of the cutting, and the sight of blood only made her think that the doctor had been "playing upon her imagination." The relief experienced was the only proof she had that anything had been done.

Case XI. Reported by Dr. Slaughter, House Surgeon, New York Hospital, service of Dr. Weir.—An attempt was made at reduction without an anæsthetic of a dislocation of shoulder in a male adult, but the pain was so great that ether had to be resorted to. Then during the stage of "first insensibility" more violent attempts were made, but were likewise unsuccessful, so far as reduction was concerned, but entirely successful as to complete abolition of pain. Muscular relaxation was not effected by the primary anæsthesia, and the ether cone being removed the patient soon returned to consciousness, when he declared that he had felt no pain whatever. The ether was then carried to complete anæsthesia with muscular relaxation, etc., when the reduction was easily effected.

Case XII. Reported by Dr. Gibney.—German girl, aged twelve. Double tenotomy for shortening of tendons of Achilles in infantile paralysis. November 26, 1878, in Hospital for the Ruptured and Crippled, patient given about two drachms of chloroform for inhalation, hands being held by an assistant. As soon as the first sign of relaxation was noted, the tendons were subcutaneously divided, both in less than one minute. The girl, on returning to consciousness, declared that she knew what was going on but did not feel any pain, as was further evidenced by absence of both voluntary and reflex muscular action during the operation.

Case XIII. Reported by Dr. Gibney.—Opening of a large and painful abscess over left scapula. A. G., aged 13, had been suffering from a cellulitis for three weeks. The parts were exquisitely sensitive. On December 9th, Dr. A. H. Smith kindly rendering such assistance as was necessary in the proceedings, and while the patient sat erect, administered the ether. Fifty seconds after applying the cloth to the face, the incision was made without the least flinching. A few seconds later the boy said, "I heard you stick me," but claimed that he felt no pain. He had just taken his dinner, and no nausea was produced by the administration of the ether.

Case XII. is especially interesting, as it bears on a point upon which Dr. Packard was from want of experience unable to speak, i. e., whether in chloroform inhalation the "first insensibility" exists. Dr. Packard moreover states that it does not belong to the administration of nitrous-oxide gas.

Since the above cases have been brought to the notice of the Committee, I would add that the use of this "first insensibility" of ether, or, as it is now commonly called here, "primary anæsthesia," has become fully established in the practice of the New York and Roosevelt Hospitals, and it has been thought unnecessary, therefore, to add to the report the many additional cases that have occurred since the last meeting of our Committee.

In respect to the second question, i. e., relative to the effect of injections of carbolic acid into vascular tumors, I beg to state, in behalf of the Committee, that the report presented must necessarily be considered as preliminary in its nature. So far as it has been considered, the subject has been divided, first, into those cases in which either a strong solution or the liquefied carbolic acid has been used, and second, those wherein a weak solution has been employed.

The following cases, illustrative of the use of strong injections, were detailed by Dr. T. E. Satterthwaite:

Case I.—B. M., male, aged forty, phthisical, had suffered from hæmorrhoids for four or five years. They gave him great annoyance, coming down at every passage from the bowels and bleeding freely. A concentrated solution of carbolic acid (♏ x) was injected hypodermically deep into the substance of the pile, and then pressure was exerted upon the tumor so that the acid should be spread throughout the mass. Immediately the tissue about the middle became white, and the patient complained of pain. For an hour he could hardly move. The mass was oiled and returned within the anus, and it was with great difficulty that he walked home. The swelling gradually increased, and finally an abscess formed at the side of the anus, and was discharging from a deep rough cavity the size of a pullet's egg for twelve days after the operation. Some months later there was found an extensive fistula at the point of injection. The patient died of phthisis eight months after the operation.

Case II.—S. A., aged thirty, a healthy man, had been suffering from internal piles about one year. They came down whenever he had a passage from the bowels, and bled freely. The patient having strained, a pile the size of a chestnut came down, and this was injected hypodermically with about eight minims of concentrated carbolic acid carried deep into the tumor, which was then anointed with oil, and reduced. Suppositories of opium, gr. ij each, were ordered. Five days later he returned, complaining of excruciating pain, and saying that he had been confined to his bed for two days. He had also suffered from retention of urine, so that a physician had to be called in order to draw off the water. The pile had slipped without the sphincter, and was much enlarged. Nothing further is known of the case.

Case III.—M. R., aged twenty-eight, a man of large frame and muscular development, had suffered from bleeding piles, and had lately lost a great deal of blood at every movement when the fæces were at all hard. After straining, four large piles came down, and each one was injected hypodermically with about six drops of concentrated carbolic acid and six drops of glycerine. No great pain was experienced at the time, but the patient returned two days later, when all the piles had prolapsed, and were inflamed and painful. On the next day Allingham's operation was done, the result being a perfect cure.

Case IV. Reported by Dr. R. F. Weir.—L. W., a girl of seven, who had a nævus occupying the radial side of the second finger of left hand from the web to the first phalanx, and extending partially on the dorsum of the finger. In consequence of this, hypertrophy of that finger had occurred, so that it was longer than its fellow of the right hand, and tilted bow-shaped toward the ulnar side of the hand. Ligature of the digital artery on that side has been resorted to with but slight improvement, and finally, by a fine hypodermic needle, one or two minims of liquefied carbolic acid were injected three times, at an interval of a week between each injection, into the angiomatous tissue with the effect of causing a great improvement. The result of the first two injections was, aside from the arrest of pulsation in the neighborhood of the acid, to cause a hard, pea-like mass to form in the tissues with subsequent shrinkage. This was attended with very little pain either at the time or afterward. The third injection was on the back of the second phalanx, and was too superficially injected, as it showed immediately as a white mark, which ultimately proved to be a dry slough. This came away after some little time, leaving a granulating ulcer which, by its cicatrization, contributed materially to the obliteration of the dilated vessels.

Case V. Reported by Dr. A. H. Smith.—A large bronchocele had been repeatedly injected with pure carbolic acid, without any local or constitutional reaction. Only moderate improvement was obtained by the treatment, though the sites of the injections could be recognized as nodular masses for some time afterward; and also, when later the tumor was removed by ablation, the condensation of the goitrous tissue was readily recognized by the eye.

Inasmuch as the remaining cases in which hæmorrhoidal tumors treated by the injection of weak solutions of carbolic acid have been presented by myself, I beg the privilege of prefacing them with the remark that the mode of treatment advocated, while not original, is intended to apply to those individuals who, while suffering sufficiently from this common rectal trouble, are yet, principally from reasons of timidity, or perhaps from inability to cease their avocations even for a few days, unwilling to submit themselves to what is fully recognized as the most satisfactory method of treatment for hæmorrhoids, to wit, their ligation by the method of Salmon, or, as ordinarily known, of Allingham.

The application of nitric acid to the surface of the pile, as suggested by Houston, and lately revived by Billroth and used by the latter surgeon to a wider extent than in previous times, is sometimes quite painful, and, when resorted to injudiciously or too freely and too frequently, even dangerous. The use of ergot in the bowel as an enema is only a temporary and imperfect relief; hence the desire to be possessed of some means to help in the management of such cases, and the acceptance of the report of two intelligent friends who informed me that they had been cured of hæmorrhoids at the hands of a certain irregular practitioner by the painless injection of carbolic acid into the substance of the protruded parts.

Believing that the painless nature of the little operations, for they were repeated three times respectively, to which they were subjected, was due to the weakness of the solution used, and also knowing that the employment of stronger solutions had, in the experience of Western surgeons, been followed at times by unpleasant inflammatory results, and occasionally by dangerous consequences, I determined to resort to the use of such a weak solution in the next case that presented itself to me. Therefore, in the spring of 1877 I resorted to it with success in a single large venous hæmorrhoid, injecting a 1 to 20 solution, with a few drops of glycerine in the mixture, by inserting the point of a fine hypodermic needle into the center of the tumor, and forcing in gently some ten or twelve drops of the fluid, until the pile was slightly distended. A trifling smarting followed, which passed off in less than three minutes. The patient went about his business the same day, had a little tenderness at the next day's evacuation of the bowels, and ten days afterward, the pile having shrunk one half, a second injection was made, which completed the cure.

A second case occurred shortly after this in an elderly lady of sixty, who had several large piles protruding from the anus, and which at times bled quite freely. In August, 1877, two of these were injected with a solution of 1 to 10 (made by mistake of this greater strength), with the glycerine added as before. A little sharper smarting followed, with an increased soreness the next day. August 14th, the previously injected piles had very decidedly shrunk. Two more were injected in the same way by a 1 to 20 solution, and again, on the 23d, a remaining pile and a portion of one of the first attacked were injected for the third time. The protrusions steadily shrunk, and she soon thereafter left the hospital, cured. She was seen several months later, and only one or two shriveled tabs marked the remains of the hæmorrhoids.

Since then I have used it in six other cases without mishap, except in one case—a personal one. A hæmorrhoid annoyed me much in popping out whenever any exertion was made, and the subsequent strangulation of the sphincter often caused much pain. I therefore had it injected with a 1 to 20 solution of carbolic acid, which caused but a slight tingling for a few minutes, and was able to continue my professional work without any discomfort for two days thereafter, when, apparently in consequence of a sharp though short attack of diarrhœa, the pile came down, became caught by the sphincter, and was rendered irreducible by the consequent swelling. Slight sloughing resulted, and rest in the house was necessitated for several days. This experience, with another similar one that occurred at the hands of a friend, while not in my mind condemning the method of treatment, has shown that where a hæmorrhoid is likely to be similarly caught by the sphincter it should not be resorted to. *En passant* it may be remarked that for such a complication, occurring from this cause or from any other, forcible stretching of the sphincter is at once called for.

The injection of weak carbolic solutions is, however, I think, a means that can be safely employed in completely internal hæmorrhoids, or those that are more or less continuously protruding from the anus. In the last two cases, a solution of 1 to 30, without any glycerine, was used, and it appeared to answer as well as the 1 to 20 solution. It is, in addition, a strength that admits of perfect solution of the acid; any cloudiness of the fluid or appearance of undissolved globules of the acid should cause its rejection. Care should also be taken not to insert the needle too close to the base of the pile.

It is conceded that the number of cases presented is too few to enable any opinion to be pronounced upon the plan proposed, and they are brought forward mainly in the hope that a further test of the use of carbolic acid in the treatment of hæmorrhoids may be had, and a judgment of its merits obtained, separate from that given respecting the use of the stronger or concentrated solutions of the same substance.

It is in this view that this imperfect report on the question is submitted to the Society by the Committee. In order to obtain further information relative to this point, Dr. Satterthwaite has drawn up the following questions, answers to which are requested to be sent to the Secretary of the Therapeutical Society, Dr. A. H. Smith, by whom they will be forwarded to the Surgical Committee, and duly acknowledged.

Concerning the Injection of Solutions of Carbolic Acid into Hæmorrhoids.

In reporting on this subject please state:

1. Condition of general health?
2. Whether external or internal hæmorrhoids?
3. How extensive were they?
4. Had the patient any other disease?
5. How long had hæmorrhoids existed?
6. The formula employed?
7. How many drops were injected?
8. The instrument employed?
9. Was it necessary to repeat the operation? and, if so,
    (*a.*) How many times?
    (*b.*) At what intervals?
10. Was the injection deep or superficial?
11. Was the patient confined to the house?
12. Did any inflammatory reaction follow?
13. Was the operation regarded as a success or a failure?
14. How long after the operation were the parts again in their normal condition?
15. Is the method thought to have decided advantages over those now in use?
16. In what cases would it be especially recommended?

In executive session, the following named gentlemen were elected members of the Society:

Drs. Robert Abbe, L. A. Stimson, L. C. Gray, and C. T. Poore.

Bibliographical and Literary Notes.

Art. I.—*The Physiology and Pathology of the Breast and its Lymphatic Glands.* By Charles Creighton, M. B., Demonstrator of Anatomy in the University of Cambridge. London: Macmillan & Co., 1878. 8vo, pp. 200.

Much contained in this volume is doubtless already familiar to those interested in such matters, having been published partly in the "British Medical Officers' Reports," and partly in the "Journal of Anatomy and Physiology." The whole, as now collected in book form, makes almost the only recent literature of the subject.

The book is divided into two parts: one physiological, wherein are traced the changes occurring in the breast during the periods of evolution, activity, and involution; and the other pathological, showing how the physiological pass into pathological processes. As an example of painstaking study and investigation, it is a model; but the conclusions arrived at are so entirely heterodox that, if true, they must cause an entire revolution in our ideas of the derivatives of the blastodermic membranes.

The breast, he believes, is developed, not as is generally held, from the middle layer, but from the external layer, or epiblast. The derivation of the epithelial elements of the acini from the middle or connective-tissue layer is contrary to the observation of all authorities on this subject.

Tumors of the breast he believes to be due to the accumulation of waste epithelial elements, the result of a false evolution caused by some special irritation. According as the irritation is slight or severe, we get soft carcinoma, scirrhous, myxoma, or enchondroma. All these tumors are, he maintains, due to the same kind of growth, the difference being one of degree.

The lymphatics are infected, according to this author, by the direct contact and spermatic influence of cells carried from the original tumors.

These views are so novel that they will certainly not gain immediate acceptance; but, as the author is evidently honest, and his theories are based on carefully made observations, they deserve attention until their truth or falsity has been proved by other observers.

Art. II.—*The Science and Practice of Surgery, including Special Chapters by Different Authors.* By Frederick James Gant, F. R. C. S., Senior Surgeon to the Royal Free Hospital; Author of "The Principles of Surgery: Clinical, Medical, and Operative." Second edition, in two volumes. Philadelphia: Lindsay & Blakiston, 1878.

The text of this work has been revised, and many portions rewritten, with the introduction of much new matter, altogether increasing the size of the book to five hundred and thirty-two pages. The work is profusely illustrated, and many of the cuts are entirely new. In the preparation of this edition the author has evidently taken great pains to bring his treatise up to the times, and to make it acceptable as a work of reference as well as a text-book for the student. In order to do this the more thoroughly he has called to his aid the assistance of other writers well known in different departments of surgery. For example, we find the chapter on "Diseases of the Female Genital Organs" has been revised and extended by Dr. Robert Barnes; while William Adams has dealt with "Deformities, including Orthopædic Surgery and Lateral Curvature of the Spine." An interesting chapter is also given on the use of the sphygmograph in the investigation of disease.

Art. III.—*Insanity in Ancient and Modern Life, with Chapters on its Prevention.* By Daniel Hack Tuke, M. D., etc. London: Macmillan & Co., 1878. 12mo, pp. xvi.–226.

Dr. Tuke, in a very interesting way, gives many of the causes of insanity in both ancient and modern times, alluding to the vices, excitements, business anxieties, disappointments, poverty, etc., peculiar to every age. The author thinks idleness is as much a cause of insanity as over-work. He thinks the brain needs employment, an aim. While overwork has its evils, the disappointments and anxieties attending an over-active life are more potent in causing insanity than the work itself. Immoralities of all sorts tend to induce insanity, partly in consequence of their direct effects, and partly from the subsequent depression which immoral practices engender. The use of alcoholic beverages is thought to be one of the most common causes (direct or indirect) of the disease.

The author believes, by way of auto-prophylaxis, that the individual, by the exercise of the will power, may do much toward controlling delusions when they first appear, by diverting the mind to other channels. All known causes of disturbance should be banished, and the first symptoms, as sleeplessness, changes of temper, indecision, etc., should receive early attention.

ART. IV.—*Physics of the Infectious Diseases: comprehending a Discussion of Certain Physical Phenomena in Connection with the Acute Infectious Diseases.* By C. A. LOGAN, A. M., M. D. Chicago: Jansen, McClurg & Co., 1878. 12mo, pp. 212.

THE author of this book spent four years in South America in the official capacity of United States Minister to Chili. While there, he seems to have paid considerable attention to the study of certain physical phenomena, such as earthquakes, etc., and he now seeks to enlighten the medical profession by giving new explanations of the causation of these phenomena, and setting up new theories therefrom regarding their relation to the etiology of the infectious diseases.

So far as the enlightenment is concerned, we will say in the first place that certain of his theories are utterly untenable if measured by the investigations of recognized scientific authorities; and in the second place, those views which are tenable are so well known that it is not worth his while to put them in book form. He delves deeply into the problem of life, and shows as little knowledge of its real nature as the rest of us possess; he gives expression to many meaningless phrases and definitions, and covers a great deal of ground in telling a short story. One of his pet theories is, that earthquakes are electrical phenomena, and he has much to say about the "electric energy."

ART. V.—*A Hand-book of Nursing for Family and General Use.* Published under the Direction of the Connecticut Training-School for Nurses, State Hospital, New Haven, Connecticut. Philadelphia: J. B. Lippincott & Co., 1879. 12mo, pp. 266.

THIS book seems to us to be full of exceedingly valuable suggestions. If every family possessed a copy, it would enlighten the laity without encroaching upon the physician's territory; and, besides contributing to the health and comfort of individuals, it would relieve the attending physician of much trouble and annoyance.

BOOKS AND PAMPHLETS RECEIVED.—Transactions of the American Ophthalmological Society, Twelfth, Thirteenth, and Fourteenth Annual Meetings—New York, 1876; Niagara Falls, 1877; Newport, 1878. New York: Published by the Society, 1878.

Naval Hygiene. Human Health and the Means of preventing Disease, with Illustrative Incidents principally derived from Naval Experience. By Joseph Wilson, M. D., Medical Director U. S. Navy. Second edition, with colored lithographs, etc. Philadelphia: Lindsay & Blakiston, 1879. Price, $3.

Diphtheria: its Nature and Treatment, Varieties and Local Expressions. By Morell Mackenzie, M. D. Lond., Senior Physician to the Hospital for Diseases of the Throat and Chest. Philadelphia: Lindsay & Blakiston, 1879. Price, 75 cents.

On the Treatment of Pulmonary Consumption by Hygiene, Climate, and Medicine. By James Henry Bennet, M. D., Member of Royal College of Physicians, London, etc. Third edition. Philadelphia: Lindsay & Blakiston, 1879. Price, $2.50.

A Practical Manual of the Diseases of Children, with a Formulary. By Edward Ellis, M. D., late Senior Physician to the Victoria Hospital for Sick Children, etc. Third edition. New York: W. Wood & Co., 1879. 8vo, pp. 313. Wood's Medical Library of Standard Authors. No. II.

Section Cutting: a Practical Guide to the Preparation and Mounting of Sections for the Microscope, etc. By Sylvester Marsh. Philadelphia: Lindsay & Blakiston, 1879. Price, 80 cents.

The Influence of Posture on Women in Gynecic and Obstetric Practice. By J. H. Aveling, M. D., Physician to the Chelsea Hospital for Women. Philadelphia: Lindsay & Blakiston, 1879. Price, $2.50.

Health, and how to promote it. By Richard McSherry, M. D., Professor of Practice of Medicine, University of Maryland. New York: D. Appleton & Co., 1879.

A New Treatise on Assimilation and Digestion, showing the Different Solvent Juices and Fluids. By John Wesley Evans, M. D., New Canton, Illinois. Pp. 112.

Annual Report of the Directors and Medical Board of St. Michael's Hospital, Newark, New Jersey, January 1, 1870.

Diphtheria: its Nature, Causes, Prevention, and Treatment. Good Health Publishing Co., Battle Creek, Michigan, 1879.

Reports on the Progress of Medicine.

CONTRIBUTED BY DRS. E. FRANKEL, G. R. CUTTER, AND C. CLEVELAND.

DISEASES OF CHILDREN.

Pilocarpine in Diseases of Children.—Professor Demme gave Merk's pilocarpine to 33 children by subcutaneous injection. Of these, 18 suffered from desquamative nephritis with dropsy after scarlatina, 3 from diphtheria without scarlatina, with consecutive parenchymatous nephritis and excessive general dropsy; in the remaining 12 children the remedy was employed in two cases for the removal of dropsical effusions due to valvular disease. It was given in three cases of acute articular rheumatism, in three of severe catarrhal pneumonia, twice in whooping-cough, and twice as a sialagogue in acute epidemic parotitis. The youngest child was nine months old; 9 children from one to three years; 11, four to seven years; 7, eight to ten years; 3 were eleven and 3 twelve years old. The dose at one time by hypodermic injection for children up to two years was 0·005. From the second to the sixth year it varied, according to the patient's strength, between 0·0075 and 0·01. From the seventh year the first dose was 0·01, afterward increased to 0·015–0·025. As a rule only one injection was made daily, though in cases of complete suppression of urine and uræmia from two, to four injections of 0·01 were made in 24 hours. In all cases excepting two the remedy was well borne when methodically administered. One of the two cases was a girl of five years, suffering from scarlatinal nephritis with moderate dropsy without uræmic symptoms, in whom every injection (0·005 pilocarpine) was followed in a few minutes by severe vomiting and syncope, paleness of the face and extremities, with annoying hiccough. The diaphoretic and sialagogue effects were slow and incomplete. In children older than four years, the diaphoretic action was most prominent; but in younger children an increased secretion of saliva predominated. Both effects generally occurred 3 to 5 minutes after the injection, reached their maximum intensity within 10 to 15 minutes, and remained from 20 to 50 minutes, then gradually disappeared. As a rare exception, is mentioned the case of a boy eleven years old suffering from mitral regurgitation and general dropsy, in whom, after successful compensatory treatment of the valvular disease, repeated injections of pilocarpine invariably caused profuse diaphoresis even after 2 or 3 minutes, but which ceased after 8 to 10 minutes. After the tenth injection, however, no effect could be produced, though the dose was increased.

The diaphoretic effect generally lasted much longer than the sialagogue. It was preceded by redness of the face, sometimes of the chest and arms. In one child an eruption of urticaria always appeared. In some children a remarkable contraction of the pupil was noticed one to two minutes after the injection, which disappeared when the child began to perspire. A moderate elevation of temperature was observable 5 to 10 minutes after the injection, the temperature falling to its former standard on cessation of perspiration. The pulse was increased 20 to 60 beats per minute immediately after the injection, the character of the pulse being fuller and less compressible. Loss in weight after the injection varied from 120 to 675 grammes. The secretion of urine during the action of the drug is increased only in exceptional cases. Lachrymal secretion is increased. In regard to the therapeutic results, it is certain that in cases of scarlatinal dropsy the effect is favorable. According to the author this remedy surpasses in certainty and rapidity of action all others hitherto employed to produce profuse diaphoresis. The quantity of albumen in the urine is not increased, but rather diminished. E. F.

SURGERY.

Results of Ovariotomy before and after Antiseptics. By T. Keith, F. R. C. S., Edinburgh.—In a summary of his experience, published in the "British Medical Journal," Dr. Keith states that he was first convinced of the value of antiseptic treatment ten or twelve years ago, when shown by Mr. Lister a living blood-clot in the wound of a compound fracture.

In what he calls the early days of antiseptics—1869–'71—a solution of carbolic acid was used freely in washing out the peritoneal cavity; all the ligatures and instruments were carbolized; towels soaked in the solution were held against the wound to keep the air pure that entered; the walls even of the room in which the operation was performed were sponged with it; in fact, carbolic acid was wasted in every way, and nothing but disappointment followed.

For the next five years he made use of no antiseptics in ovariotomy, though continuing to do so in other operations. He still believed in the principle, but thought it better to trust to care and cleanliness alone. There was no preparatory treatment, save the giving of a cathartic. Few restrictions were put upon visitors. He freely exposed the abdominal cavity, cleaned it thoroughly, and there was no haste in closing. All oozing parts were secured either by Lister's ligatures or by the cautery. The cautery gradually displaced the clamp, or, when ligatures were required, he used fine iron wire or catgut. He thinks he was fortunate in having discarded the use of silk, judging from Mr. Wells's one hundred and fifty-seven cases, in which silk was used, and of which sixty died, whereas, in fifty cases of his own, where the cautery was used, only four died. In severe operations it was his rule to use the drainage-tube, extending to the bottom of the pelvis.

Since 1876 he has operated with all Mr. Lister's care, and under the carbolic-acid cloud, and declares that he shall never go back to the old way.

Before giving his impressions of ovariotomy under the spray, he shows what he has been able to accomplish by carefulness alone. He does not consider it a difficult operation, but one that requires care, and, in bad cases, time. He first operated sixteen years ago. Of his first one hundred cases he lost seventeen. During the five years preceding the use of spray he operated ninety-four times. Of these cases nine died: three from malignant disease, one from obstructed intestine, and one from old kidney disease.

He considers his good results due, 1, to drainage in severe cases by a large perforated glass tube going to the bottom of the pelvic cavity; 2, to the use of the cautery in dividing the pedicle; 3, to the use of Koeberlé's compression forceps in large numbers; 4, to the substitution of ether for chloroform in his last two hundred and thirty operations. Of these, drainage and the cautery contributed most.

He has performed forty-nine operations under the spray. Two of the first eight died, the remaining forty-one recovered. At first, relying too much upon the spray, he performed his operations rather more hurriedly, did not sponge so carefully, and did not secure every bleeding point. He gave up the drainage-tube. He is now convinced that, even with the spray, it is advisable to use all carefulness, and always to use the drainage-tube in severe cases.

Then follows a comprehensive table of the cases where the spray was used.

He uses Gardner's instrument, with the double spray producer.

He is very positive about the necessity of using the spray, and says it is essential to the perfect carrying out of Mr. Lister's principle.

He thinks that the clamp must give way to some intra-peritoneal method of treating the pedicle. His best results were after the use of the cautery.

What has ovariotomy gained from antiseptics? 1. It has lessened the mortality. 2. The increased safety will induce surgeons to recommend earlier operations. 3. The drainage-tube will not be so often required. No one has practiced drainage so much as he, yet he knows well that it sometimes can not be used without risk. 4. Convalescence is rendered easier. 5. Antiseptics are a great comfort and relief to the operator. He does not mean at the time of the operation, but in the feeling of confidence and security it affords in regard to the safety of the patient.

Drawbacks may yet appear. He had noticed great depression following long operations under the spray, and the greater stimulation that was necessary for the first twelve or twenty-four hours.

The pleasure in the operation is marred by the frequency with which malignant disease is found at the time of operation or makes its appearance soon after. One fourth of his deaths were from malignant disease. Some who went home cured and apparently in excellent health developed cancer after some months.

He pays a deserved tribute to Dr. Foulis for his investigations of the anatomy of the ovary, which have made its pathology simple, and enabled us to recognize healthy and malignant ovarian structure, simple ovarian and peritoneal fluids, as well as those of the uterine fibro-cysts.

He considers this long-despised operation the safest of all the great surgical operations, and closes with a tribute to Mr. Lister.

On the Effect of Superficial Cauterizations of the Pharynx in Certain Neuroses. ("Allg. Med. Centr. Zeit.," "Med.-Chir. Centralbl.," 1878.)—Bitot emphazises the favorable effect of these cauterizations of the pharyngeal mucous membrane in cases of cranial neuroses with amnesia, due to affections of the superior cervical ganglion of the sympathetic. His conclusions are: 1. The head is the seat of certain nervous derangements whose localization has not yet been determined. 2. In these the cranial portion of the sympathetic must participate. 3. The assumption is justifiable that the superior cervical ganglion of the sympathetic, which forms the chief seat of the derangement, is the starting-point. 4. When this neurotic condition resists the usual therapeutic measures, the relations of this ganglion to the pharyngeal mucous membrane make the latter especially adapted to counter-irritation. 5. The application of iodine to this mucous membrane has furnished remarkably favorable results in essentially nervous derangement; on the other hand, it is inert in the consecutive phenomena of apoplexy. 6. Under this treatment, many of the cases complicated with amnesia have regained the power of memory.

E. F.

Luxation of Inner Extremity of Clavicle forward and upward.—Vanverts ("Gaz. des Hôpitaux") reports a further case of this rare dislocation. A man, sixty-nine years old, in falling struck against a stove with the right half of his thorax. Seen by the author immediately after the accident, he complained of severe pain in the region of the fourth and fifth ribs external to the nipple. Respiration was short, intermittent, and accompanied by pleurodynia; intense pain on moving the arm. The internal extremity of the left clavicle was markedly projected forward. The patient being very emaciated, the entire articular facet could be felt. Judging from the false point of motion, which was not that of a fracture, it seemed that the inter-articular cartilage had followed the facet. The most remarkable point, however, was the projection of the luxated portion upward, the clavicle projecting two to three centimetres above the sternum. The face was slightly turned toward the right, the head inclined toward the left shoulder. Contrary to the statement of surgeons, that dislocations of the clavicle are easily reducible, the author states that he and other colleagues could not accomplish reduction (forcibly drawing the shoulder back and depressing the luxated end) attempted on repeated occasions. Anæsthesia was not employed.—(Supplement "Med.-Chir. Centralblatt," 1878.)

E. F.

Esmarch's Bandage in Diseases of the Extremities. ("Berl. klin. Wochenschr.," "Med.-Chir. Centralbl.")—Cohn has employed the bandage for the purpose of absorbing inflammatory and other morbid products in the extremities. Three cases of interest are reported. Two of these were of acute nature, in which, on account of the rapid improvement, the treatment is not very significant. The first was a subcutaneous phlegmon with formation of abscess, in a merchant sixty-three years of age. The second was in a female domestic of forty years who had an inflammatory, very painful swelling of the right forearm. After the bandage had been applied the pain and swelling diminished. The third, and most important case, was that of a boy of three and a half years who had suffered from white swelling of the knee-joint for one and a half year. The patient had been subjected to usual methods of treatment for eighteen months. On April 17th the treatment by constriction was commenced. On the first day the constriction was kept up only a few minutes. The time was increased daily and on the fifth day was kept up for an hour. It was then renewed several times each day. Three weeks afterward the circumference of the knee had diminished three centimetres, the condyles had resumed their normal contour, the patella had become loosened and was easily movable, pain had almost entirely disappeared. Flexion by passive motion was greater and hardly painful. The patient could also straighten the limb and retain it in that position for several minutes. Toward the end of June the cure could be considered complete, at least in a functional aspect.

E. F.

Miscellany.

Mr. Callender's Visit to America.—Now that we know of Mr. Callender's safe return to England, American surgeons may review with pride and satisfaction the honors conferred on the distinguished successor of Sir James Paget. His reception in New York, Philadelphia, Baltimore, and Washington was exceedingly flattering, and he has doubtless made many warm friends in this country. He sailed last November from England for America (where his reputation had already preceded him), for the purpose of studying our system of medical education, especially from its clinical aspect. He came to us not as a stranger, and all the honors which were tendered to him were but a fair recognition of the thorough scientific work which he has done during his professional life. He was tendered a dinner by Professor Markoe, a reception by Professor Sands, a lunch by President Gilman, of Johns Hopkins University, a dinner by Health-Officer Dr. Vanderpoel, and a breakfast at Delmonico's by Professor James R. Wood. On the latter occasion, all the surgeons of New York, and many from neighboring cities, were invited, and there was a rare assembly of eminent medical men, and that, too, at an hour when the entire profession is most engaged. In Philadelphia Mr. Callender was entertained by Professors Gross, Pancoast, Levis, Mr. George W. Childs, and others, and was also the recipient of many social honors by prominent men of other cities.

Mr. Callender delivered a lecture for Professor Sayre at the Bellevue Hospital Medical College, and was invited by Professor Wood to occupy his hour at his regular surgical clinic. This clinic is the most largely attended of any in this country, and it was an honor to the famous London surgeon that he was called upon to appear before the largest audience that has ever gathered to witness a surgical operation in this city. It is estimated that there were fifteen hundred surgeons and medical students present on that occasion, and hundreds were unable to obtain admission to the amphitheatre.

Mr. Callender was introduced by Professor Wood, and was greeted with enthusiastic applause. He then stepped forward and delivered a most interesting clinical lecture on the treatment of amputations, and congratulated Professor Wood on the great success that had attended the cases operated upon by him in Bellevue Hospital. He also mentioned a series of cases treated by Professor Stokes, of Dublin, and his friend Professor Humphreys, of Cambridge. He urged, in a most forcible manner, upon the students present, the very great importance of attending carefully to the details of surgical dressing, and emphasized the great need of exact attention to the complaints, no matter how insignificant, of patients during convalescence after amputations. He stated that the advancement in surgery was now to be made in the little details of the after-treatment, in hospital as well as in private practice. He spoke of the importance of alleviating pain after operations, and declared that the percentage of mortality after amputations should be very small. He said further that there was no need of patients suffering, and that when they did it was most likely the fault of the surgeon. He also urged the students to consider nothing in the science of surgery too small to be worthy of their attention.

At the close of the clinical lecture a patient was brought into the theatre, and Mr. Callender proceeded to amputate his thigh. The operation was performed in the skillful manner for which that surgeon is famed. The stump was dressed before the audience, the operator meanwhile explaining his beautiful apparatus for the treatment of patients after amputation. Professor Wood then amputated the thigh of another patient who had suffered for years from extensive disease of the knee-joint. The operation was executed very skillfully, and occupied only a few seconds. Another patient was then placed upon the operating-table, and Dr. Wood gave the students a practical lesson in conservative surgery. He removed the tibia, leaving behind the periosteum, so that a new bone might be reproduced. The entire clinic lasted over two hours. The patients have all done well. Both cases of amputation recovered without any bad symptoms, and were up on the twenty-second day.

Nitro-glycerine in Medicine.—Dr. William Murrell, in the "Lancet" of January 18th, and in subsequent numbers, discusses the value of nitro-glycerine, and gives the results of his own experience with it as a remedy for angina pectoris. The experiments were made chiefly with a one per cent. solution of nitro-glycerine in alcohol, of which from one to one hundred drops were taken. The first effect seems to be a severe headache, followed by a tight, choking sensation. Decided effects in angina pectoris were obtained from one-drop doses three times a day. Women are much more susceptible to the drug than men. Dr. Murrell has given fifteen-drop doses to a man with good results.

Intra-venous Injection of Milk.—The "Medical Times and Gazette" of February 1st reports a case which occurred in Dublin January 22d. A young man was in a state of extreme exhaustion from typhoid fever, and transfusion was proposed as a last resort. Dr. Robert McDonnell substituted the intravenous injection of milk, nine ounces and a half, warm from the cow, being slowly passed into a vein near the elbow. The pulse immediately rose, but after the operation became very rapid and feeble, with great respiratory disturbance. After two hours a marked improvement took place, and continued; and six days later the patient was taking nutriment freely and doing well, though still weak and emaciated.

Rapid Medical Practice.—According to the published reports of St. Bartholomew's Hospital, it appears that patients are disposed of in the Casualty Department at a rate that would astonish their American cousins. Four physicians are in attendance on four days in the week, and then only during a part of the mornings. Yet each one of the four physicians sees, examines, and prescribes for at least 30,000 patients during the year. The usual rate is at least 100 per hour. The prescribing is managed by giving small tickets bearing the printed initials of the medicine required. It was this same practice, this burlesque of charity, against which, if we remember correctly, the late Dr. Mayo emphatically protested some years ago in the same hospital.

Medical Society of the State of New York.—The seventy-third annual meeting of this Society was held in Albany February 4th, 5th, and 6th, under the presidency of Dr. D. B. St. John Roosa. The following officers were elected for the ensuing year: President, Dr. Henry D. Didama, of Syracuse, Onondaga County; Vice-President, Dr. Nathaniel C. Husted, of New York; Secretary, Dr. William Manlius Smith, of Manlius, Onondaga County; Treasurer, Dr. Charles H. Porter, of Albany.

Frozen Sections of the Human Body.—Dr. Garson, Anatomical Assistant at the Royal College of Surgeons, London, is engaged in making an elaborate series of sections of the frozen subject, after the manner of Professor Braune, of whom he was a pupil. The process is difficult, but is said to have been successfully accomplished on two subjects, one of which has been entirely divided into transverse and the other into longitudinal sections.

Cremation in England.—A large deputation of citizens of Woking, England, have petitioned the Home Secretary not to permit the establishment of a cremation-pyre in or near that town, such a project having been under consideration. The "Lancet" takes occasion to denounce severely the "heathen practice" of burning the dead, chiefly because, by destroying all traces of poison and internal injury, it would encourage crime.

Death from Chloroform.—A death during the administration of chloroform took place in Professor Dumreicher's clinic December 20, 1878. From fifteen to twenty grains had been inhaled when the man expired. Every means of resuscitation was tried, including tracheotomy, but in vain. The *post mortem* revealed no disease to account for the accident. The operation proposed was for hydrocele.

The Illinois Medical Law.—The Illinois State Board of Health held its annual examination in Springfield January 16th. The Board has power to examine candidates in all branches of medicine, and to grant licenses. The total number of licenses to practice issued in the State is 4,950. All physicians who have practiced less than ten years in the State are subject to examination by the Committee.

The Metric System in Medicine.—The "Boston Medical and Surgical Journal" keeps the following metric memoranda constantly standing:

OLD STYLE.	METRIC. Gms.	
♏ i or gr. i equals		06
f ʒ i or ʒ i equals	4	
f ℥ i or ℥ i equals	32	

The decimal *line* instead of *points* makes errors impossible.

As ·06 (drug) is less than a grain, while 4· and 32· (vehicle) are more than the drachm and ounce, there is no danger of giving too large doses of strong drugs.

C. C. used for gms. causes an error of 5 per cent. (excess).

A teaspoon is 5 gms.; a tablespoon, 20 gms.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from January 14 to February 13, 1879.

Irwin, B. J. D., Major and Surgeon.—Par. 7, S. O. 176, A. G. O., August 15, 1878, granting him one year's leave of absence, amended to grant said leave on surgeon's certificate of disability. S. O. 16, A. G. O., January 20, 1879.

Koerper, E. A., Captain and Assistant Surgeon.—Leave of absence granted him by S. O. 110, Department of the Platte, December 3, 1878, extended three months. S. O. 12, A. G. O., January 15, 1879.

Lauderdale, J. V., Captain and Assistant Surgeon.—To report in person to the Commanding General Department of the South for assignment to duty. S. O. 33, A. G. O., February 10, 1879.

Loring, L. Y., Captain and Assistant Surgeon.—Relieved from duty at Fort Hays, Kansas, and to accompany the command of Colonel Jefferson C. Davis, Twenty-third Infantry, and take post with them. S. O. 12, Department of the Missouri, January 20, 1879.

Semig, B. G., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort Johnston, N. C. S. O. 18, Department of the South, January 28, 1879.

Wilcox, T. E., First Lieutenant and Assistant Surgeon.—Granted leave of absence for four months. S. O. 16, C. S., A. G. O.

Barnett, R., First Lieutenant and Assistant Surgeon.—Assigned to temporary duty at these headquarters. S. O. 3 and 5, C. S., Department of the Platte.

Obituary.

Dr. Landon R. Longworth, Professor of Descriptive Anatomy and Clinical Surgery in the Medical College of Ohio, died January 14th in Cincinnati.

M. Henri Gintrac, Dean of the Bordeaux School of Medicine, died December 2, 1878, aged fifty-eight years.

Dr. Jacob Bigelow died in Boston, January 10th, aged ninety-one years. He graduated from Harvard in 1806, and was a professor in 1815. He was the oldest member of the Massachusetts Medical Society, and "one of a group of prominent men whose lives are intimately connected with the early history of medicine in this country."

The death is announced of Dr. T. Chalmers Dow, Professor of Medical and Surgical Diseases of Women in the Nashville Medical College. Dr. Dow was a successful practitioner of Nashville, and a popular teacher in his college.

M. Mathieu, of Paris, the well-known and ingenious manufacturer of surgical instruments, died early in the present year, aged sixty-one years.

The death is announced of Ambroise Tardieu, the celebrated Professor of Legal Medicine in the Paris Faculty, and formerly Dean of the Faculty.

Dr. Herman Beigel.—This distinguished physician, whose death occurred recently in Vienna, was only forty-nine years of age. Before the Franco-German war he practiced for several years in London, and, though he had acquired the English language, his energy and ability rendered him a successful competitor for many professional honors.

Professor John B. Biddle, Dean of Jefferson College, died January 19th. He was born in Philadelphia in 1815, and was educated at the University of Pennsylvania, from which he received his diploma in March, 1836. After spending several years in Paris, he returned to his native city, and at once took an active interest and a prominent position in professional matters. His *clientèle* was select, but never extensive, as he preferred a consulting to a private practice. He was professor of materia medica in the Franklin Medical College, and afterward in the Pennsylvania Medical College, both of Philadelphia. Upon the death of Dr. T. D. Mitchell, professor of materia medica and therapeutics at Jefferson College, Dr. Biddle was elected in the fall of 1865 to the position which he occupied up to the present time. Dr. Biddle was one of the editors of "The Medical Examiner," published in Philadelphia from the year 1838 to 1844, then merged into the "North American Medico-Chirurgical Review." He had not, of late years, been a frequent contributor to medical literature. His work on therapeutics and materia medica, designed as a class-book for students, was well received by the profession, and has now reached its eighth edition.

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Original Communications.

ART. I.—*Results after Excision of the Hip-Joint.* By E. H. BRADFORD, M. D., Boston, Mass.

MR. HOLMES * calls attention to the question of "the utility of the limb when the cure" (after excision) "has long been completed in comparison with the state after the natural cure. . . . The limb," he adds, "is hardly ever so firm or powerful in walking" (after excision) "as we constantly see that it is after the natural cure by anchylosis, nor is the patient so active or so enduring." He supports his opinion by reporting three cases of successful excision of the hip-joint, which he examined eleven, twelve, and thirteen years after the operation. He also claims that cases where the "natural cure" is improbable are rare, if care for years can be provided.

The difficulty of obtaining accurate information as to the condition of the greater number of these cases many years after the operation is probably the reason that few facts have been as yet collected bearing directly upon the question to which Mr. Holmes has called attention.

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* "Medical Times and Gazette," November 3, 1877.

The following few cases seem of sufficient interest to justify publication:

CASE I.—B. M., a girl seven years old, was operated on at the Children's Hospital, Boston, by Dr. Langmaid, for extensive disease of the hip-joint of long standing, complicated by amyloid degeneration of the kidney. The patient bore the operation well, gained in strength, and improved so as to be able to be driven about occasionally. The patient died a year after the excision, with symptoms of uræmic poisoning.

At the autopsy the kidneys were found to have undergone amyloid and fatty degeneration. The ilium and the femur were extensively diseased. A new joint had, however, been formed, and in the cavity was an ounce of pus. The new synovial sac was perforated by ulceration. Pus had also passed through the obturator foramen, and was found in the pelvis between the peritonæum and the ilium.

The acetabulum had been absorbed. The upper part of the shaft of the femur lay upon the ilium just above the site of the acetabulum. The femur was connected with the ilium by strong bands of connective tissue, which were attached to the inter-trochanteric line on both aspects of the femur, making a joint cavity. No socket had been formed upon the ilium to receive the upper end of the femur. If, therefore, the latter be used to support the weight of the trunk, this would be sustained by the connective tissue between the femur and pelvis. In other words the femur was lashed to the pelvis by ligamentous bands.

The specimen is of interest, as it shows the amount of repair which may be established even under unfavorable conditions.

CASE II.—J. M. was a patient of the Children's Hospital in 1870, suffering from hip disease of some years' standing. The child seemed in a hopeless condition, and excision of the head of the femur was performed by Dr. John Homans. The patient recovered, and in six months was able to go about somewhat with the help of crutches.

At the present time the boy is an inmate of the House of the Angel Guardian, a Catholic institution for the reception of dependent children. Through the courtesy of Dr. Moran, physician at the institution, and of Dr. J. Homans, I have had the opportunity of examining his present condition. At the time of examination the boy was thirteen years old, and it is now eight years since the excision of the hip. He is in fair health, and is able to go about using a crutch. The thigh on the affected side is flexed and adducted, and there is little or no motion at the newly formed hip-joint. The two legs are of the same length, but the left thigh is shorter than the right. The trochanter on the sound side is lower than the upper border of the femur of the affected side, the femur being in the position of luxation upon the dorsum of the ilium.

The incision made at the time of operation is perfectly cicatrized, as well as all the sinuses about the joint, with the exception of one which occasionally discharges.

The boy wears a "shoe lift" six inches high, is able to bear some weight upon the affected limb, but can not walk without the help of a crutch or cane.

Case III.—M. A., a boy fourteen years old, referred to me for examination through the kindness of Dr. George B. Shattuck. The boy was said to have "hip trouble" by the family friends, who were anxious to have him admitted to a hospital, if any benefit could be obtained from treatment.

From the parents I learned that excision of the hip-joint had been performed several years before by Dr. Sayre.

In Dr. Sayre's table of Exsections of Head of Femur ("Orthopædic Surgery," page 323, Case No. 46), the case is summarized as follows:

"Martin Anderson, eight years old, operated on December 10, 1873. No injury known; has been lame twenty-one months. Parents healthy; boy very stout and strong. Leg flexed and adducted. Several sinuses leading to dead bone on outer part of thigh. The femur was removed just above trochanter minor. Wire breeches and short splint were used in after-treatment. The result was a movable joint. Can bear entire weight on limb. One half inch shortening."

In Culbertson's table ("Trans. Am. Med. Ass.," 1876, page 142) the case is reported as follows: "(No. 464.) Recovered in six and two third months; one half inch shortening; almost perfect motion. Last heard from six and two third months."

At the time of the discharge from Charity Hospital, therefore, the patient was in a perfectly satisfactory condition.

At the present time, five years after the operation, the thigh is flexed and somewhat adducted. Owing to the flexion and the shortening of the femur, the boy can only touch the floor with the toes of his affected limb. He is unable to walk without a crutch or cane, and can bear but little or no weight on his affected limb.

There are no sinuses discharging, all having healed a year after the operation; the line of incision is marked by a cicatrix. The head of the shaft of the femur is upon the dorsum of the ilium. No tenderness could be detected about the hip. He has had, as far as I could learn, no injury since the excision.

The boy was healthy in appearance, but was said to be subject to occasional attacks of severe nocturnal pains referred to the hip and knee. There is almost no motion at the hip-joint.

Case IV.—C., when two years old, suffered an injury which resulted in hip disease, for which he was treated at various hospitals. He was finally brought to the Carney Hospital in an almost hopeless condition, with several sinuses discharging about the hip. The boy had remained in this condition for many years. He ultimately recovered so as to be able to go about with crutches, and finally, when ten years old, was able to walk without the aid of crutch or cane.

His condition when eleven years old was as follows: All sinuses had ceased discharging; there was no motion at the hip-joint; the femur was flexed and slightly adducted; the trochanter stands three quarters of an inch higher on the diseased than on the normal side, and one inch nearer the symphysis pubis, showing that absorption of the head and partial dislocation of the femur had taken place.

Several cicatrices of healed sinuses were to be found about the hip, and the head of the trochanter was covered with cicatricial tissue, showing that it had protruded at one time through the skin.

The boy remained nearly a year at the hospital under observation, acting as assistant to the ward tender, walking about as actively as any one without the aid of a cane or crutch. Since his discharge from the hospital, more than a year ago, the boy has been perfectly well, and has had no further trouble from his hip.

The case illustrates a "natural cure" resulting in a serviceable limb. It was eight years after the commencement of the affection before the boy was able to walk without the aid of a crutch or cane. The disease of the hip-joint was quite extensive, and the recovery apparently permanent, no relapse having taken place in nearly three years.

Case V.—D. M., aged six years, came under my charge at the Children's Hospital May, 1878. He had suffered from disease at the right hip-joint for nearly two years, and at the time when I saw him the boy was in a very feeble condition. An abscess pointed on the inner side of the thigh, and a second abscess formed in the groin just above Poupart's ligament. This was incised, and a quantity of thick offensive pus was discharged. Necrosed bone was found on the ramus of the pubes. The patient suffered from hectic fever (evening temperature, 102°). Excision of the hip-joint was performed June, 1878.

The ordinary vertical incision was made, and a large quantity of pus (a pint) was evacuated after dividing the glutei and before opening the joint. The head and neck of the femur were found crumbled into three pieces of necrosed bone, which were loose and could be picked out with dressing forceps, the largest being the size of a filbert. The shaft of the femur below the large trochanter was healthy; the acetabulum was perforated and surrounded by a firmly attached ring of dead bone. This was left, as the patient's collapsed condition did not seem to justify any further prolonged interference. The rest of the ilium was healthy, except at the ramus of the pubes, where a small portion of bare bone was found. The skin over the sacrum was undermined by a large abscess.

The subsequent course of the case presented nothing of particular interest. The patient improved in general condition and appetite for a month. He then began to fail, large bed-sores forming over the sacrum where the skin had been undermined by the large abscess. The child died August 24th, three months after the excision.

The case is one in which, at the time when the question of excision came up for consideration, a "natural cure" (to use Mr. Holmes's expression) was improbable if not impossible. The head of the femur was a loose sequestrum. Recovery could not have taken place until this had been removed. This could not have taken place without surgical interference.

If excision had been performed earlier, the patient's chances for recovery would have undoubtedly been better.

To recapitulate:

Case I. illustrates the repair and formation of a new joint after excision of the hip-joint.

Cases II. and III. show the results some years after excision.

Case IV. is one of severe hip disease treated without excision.

Case V. is one where the operation of excision was delayed too long.

Cases I.–IV. are too few to justify extensive generalization. As far as they go, however, they appear to concur with Mr. Holmes's statement, that the limb after excision is not so powerful as after a cure without operation.

This opinion has also a certain amount of support on pathological grounds. In excision, the femur is sawed off at or near the line of the trochanter. What remains of the femur is a straight shaft.

During after-treatment moderate extension is applied, and the femur kept from being in apposition with the ilium; and, as a piece of bone has been removed, the two bones are naturally separated. Little chance is given for the formation of a new socket, or for anchylosis, as, during the curative stage, the bony structures are not in contact. On recovery, therefore, the femur is united to the pelvis by connective tissue.

If excision is not performed, and recovery takes place by the "natural process," the head in extensive hip disease is absorbed, the acetabulum widened, and the so-called dislocation takes place. What remains of the neck of the femur must be in contact either with the enlarged acetabulum or some portion of the ilium.

Recovery is a gradual process; and during this process new bone is developed around the remainder of the neck of the femur, or the femur and ilium are united by bony anchylosis.

As far as can be judged from the histories given, Case IV. was as severe a case as Case III. The constitution in both boys must have been good. Recovery in Case III. was more rapid than in Case IV., where no excision was done; but the ultimate result, as far as the usefulness of the limb is concerned, was much better in the case not operated upon.

How large a percentage of recovery may be expected in cases like Case IV. is a question which requires for its answer more extensive clinical data than we as yet can refer to.

ART. II.—*The Use of Eserine and Pilocarpine in Ophthalmic Therapeutics.** By CHARLES STEDMAN BULL, A. M., M. D., Surgeon to the New York Eye Infirmary and to Charity Hospital.

I. CALABAR BEAN; PHYSOSTIGMIN; ESERINE.—Since the experiments of Argyll Robertson, Bowman, and Wells in 1863, the Calabar bean and its alkaloid have been used for the treatment of various pathological processes in the eye, though not very extensively until within the past three or four years. Of late years the results of numerous experiments made in France, Germany, and Italy have been published in various journals, and during the past year several reports have appeared in the American journals upon the same subject.

Of these latter, the most important is the report of Dr. H. W. Williams, of Boston. He has used eserine somewhat extensively for the past two years, and in the spring of 1878 he presented the results of his experience to the profession in a paper read before the Boston Society for Medical Improvement,† which was published.

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* Abstract of a Paper read by Title before the New York State Medical Society.

† "Boston Medical and Surgical Journal," March 14, 1878.

At the annual meeting of the American Ophthalmological Society, held in July, 1878, he presented a brief paper upon the same subject. He used eserine in all ulcers of the cornea, and does not think it contraindicated even in central perforation. He thinks it diminishes markedly the supraciliary neuralgia and the photophobia. In his experience eserine acts well in diseases in which atropia is usually employed, such as phlyctenular conjunctivitis, traumatic and gonorrhœal ulceration of the cornea, and ulcus serpens. He suggests its trial in episcleritis, and in beginning sympathetic irritation of one eye after injury to the other.

Landesberg, of Philadelphia, has also published his experience in the use of the drug in the Philadelphia "Medical Times," October 26, 1878.

The writer has used eserine for the past eighteen months in solutions of varying strength, and for various diseases of the eye. Experiments were tried with solutions of 1, 2, and 4 per cent. strength, and their varying effects noted, at first in normal eyes, and afterward in diseased eyes. The 4 per cent. solution proved extremely irritable to the eye and had to be abandoned, for it almost invariably caused a violent conjunctivitis. After a fair trial, the 1 per cent. solution was settled upon as the most valuable, and it rarely caused any irritation in the conjunctiva, even when in an inflamed state. This solution is practically neutral, has a faint yellowish-pink color when fresh, and is absolutely transparent, but becomes of a decided pink hue in a few days, and much sooner if the weather is warm. This change in color is said to be caused by the development of an organized product of eserine, called by Duquesnil "rubrésérine," and with little or no myotic power. Hence, as the solution reddens, it loses in active power.

In the conjunctival and corneal affections met with so commonly in strumous children, I have used eserine with about the same frequency as atropia, and where both eyes were inflamed in the same patient, eserine was used in one and atropia in the other. Contrary to expectation, it was found that the photophobia and blepharospasm so common in these cases were almost always relieved by eserine, and in many instances entirely stopped. Occasionally a case was met with in which no effect whatever was produced by eserine upon these symptoms, but when resort was had to atropia, the case began at once to improve. In the ordinary form of phlyctenular conjunctivitis, where there may be one or more small vesicles on the corneal margin, eserine does not seem to do any good; but in those cases where the vesicles are large, or where several have coalesced and have ulcerated, and the infiltration at their base seems to be extending into the cornea, eserine sometimes acts like a charm. The conjunctival secretion here is considerable, and the eserine certainly causes a marked diminution in this regard.

In *phlyctenular keratitis*, where the vesicles form upon the cornea away from the limbus, better results have been obtained on the whole from atropia than from eserine, though in some instances a change from the former to the latter proved immediately beneficial. In *traumatic keratitis*, where the corneal epithelium is stripped off for a space, and the corneal nerves laid bare, eserine in the writer's experience does no good in allaying pain or photophobia, and resort must be had to atropia. Where there seems to be danger of an infiltration spreading from the corneal wound, as is sometimes the case, then eserine is indicated, and should be instilled from three to six times a day. It is in these traumatic cases that the eserine seems to cause the ciliary and frontal neuralgia, which is spoken of by observers, more than in any other disease.

In *ulcers* of the *cornea*, the writer has not had such invariably good results as seem to have fallen to the lot of other observers. Except in the ulcus serpens or serpiginous ulcer of Saemisch, and in ulcers accompanied by or the result of suppurative processes in the cornea, the results have not been encouraging. In the serpiginous form of ulceration, after the operation of keratomy, the instillation of eserine has proved an important adjuvant, apparently from its power of reducing the tension, and doing away with the necessity of introducing a probe between the lips of the corneal wound, in order to keep it open. In the ordinary corneal ulcer, if central, the writer has obtained better results with atropia, and now never uses eserine in this form of ulcer, unless it is situated near the margin of the cornea, in which case its use will often prevent a bad prolapse of the iris when the ulcer perforates.

In all *suppurative processes* in the cornea, whether traumatic or idiopathic, with or without hypopyum, eserine usually is of great service in preventing diapedesis, as an aid to hot applications, though sometimes it does not prevent the process from extending. The very best results have been obtained from its use in gonorrhœal or purulent conjunctivitis, where the cornea becomes infiltrated and threatens to slough. An instillation of a 1 per cent. solution every two hours will generally put a stop to the suppuration in the cornea, and often cause a decrease in the conjunctival secretion.

In the form of ulceration known as the "ring ulcer" of the cornea, which begins at some point at the margin of the cornea and extends sometimes in both directions, at others in only one, around the periphery, and also extends into the substance of the cornea, eserine has proved of great value. This form of ulceration sometimes accompanies purulent conjunctivitis, and its progress is always rapid. In several cases, where atropia, hot applications, and paracentesis of the anterior chamber had failed to arrest its extension, the effect of eserine was inhibitory from the start, and improvement began at once.

In the two varieties of corneal opacities which are not of recent origin, the *maculæ* from old keratitis, and the *leucoma adhærens* from perforation with anterior synechiæ, I have never seen any benefit result from the use of eserine, either in the absorption of the opacity or the breaking of the adhesions between cornea and iris. In one or two cases of filamentous adhesions of the pupillary margin of the iris to the cornea, resulting from a small corneal perforation, the alternate use of atropia and eserine has brought about a rupture of these adhesions. But where the synechiæ are broad and firm this procedure would be of no avail.

In "ophthalmia neonatorum," or the purulent conjunctivitis of infants, the writer has sometimes seen good results from the use of eserine. It does not seem to exercise any great influence in diminishing the purulent discharge, but I have seen infiltration of the cornea in this disease stayed in its progress when the drug has been used very frequently.

In one case of *corneal fistula*, resulting from a perforating marginal ulcer and anterior synechia in a woman aged twenty, eserine seemed at first to act well. The fistulous opening had existed for several months at the inner margin of the cornea, with a small cystoid cicatrix just above it, and had obstinately resisted treatment. Eserine was used twice daily for three weeks, and the fistula closed completely, but after two weeks it reopened, and, though eserine was again used, it was of no avail, and an iridectomy had finally to be done.

In *dacryocystitis* with considerable purulent discharge, eserine has been recommended by several observers, but in the writer's hand has proved of no use, either in diminishing the secretion or in preventing the extension of the inflammation to the conjunctiva which is so often seen.

In *keratitis*, whether of *traumatic* or *idiopathic* origin, and without superficial ulceration, I have never seen any good result from the use of eserine, unless there was a tendency to purulent infiltration ; and in *interstitial keratitis*, occurring in patients as a sign of inherited syphilis, it seems to do positive harm, which lasts until atropia and hot applications are resorted to.

In contused wounds of the eye, where the *lens* has been partially or entirely *dislocated* into the anterior chamber, and there is not much irritation, eserine will prove useful in keeping the lens in place, after it has receded from the anterior chamber by the use of atropia and the supine position, from its power of contracting the pupil. But its effect as a rule lasts only while it is being used, for generally in these cases there is a partial paresis of the sphincter iridis from the force of the blow, which leaves the pupil partially dilated, and when the effect of the eserine passes off the dislocation is likely to recur.

In a case of *sympathetic irritation* with increased tension in one eye following a perforating wound in the other, eserine caused a number of small hæmorrhages from the iris and great ciliary neuralgia, and its use had to be discontinued. Atropia stopped all these manifestations, and the sympathetic trouble disappeared.

In *corneal staphylomata* which are rapidly progressive, and in which the tension is increased at the same time that the corneal tissue is very thin, eserine acts well in reducing the tension, and in some cases actually lessening the distention; but the effect seems to be transient, and does not apparently do away with the necessity of a subsequent operation for the removal of the deformity.

In *keratoconus*, it has been highly spoken of, but the writer has no experience with the drug in this disease.

It might be supposed that eserine would prove beneficial in cases of retinal hæmorrhage and exudation, from its known physiological effects. The writer has used it in two cases, but after careful ophthalmoscopic examination could never detect any change in the caliber of the blood-vessels, though such might possibly have been obscured by the very small pupil.

In *episcleritis*, eserine may be used with, I think, positive advantage. The discoloration seems to grow less marked, and the cure of the disease is manifestly hastened. Whether it would prevent the permanent discoloration of the sclera, I am unable to say.

In *glaucoma* proper, and in certain diseases with glaucomatous symptoms, eserine has been somewhat extensively used and recommended. The first investigators hailed it as a method of treatment which was to supersede the well-known operation of iridectomy, but as the properties of the drug became better known, and its effects more closely studied, the enthusiasm died out, and we are now rather inclined to regard it as an adjuvant to, and in some instances as a necessary precursor of, the operative means. The diminution of tension which it produces certainly carries along with it in most cases a widening of the field of vision and an improvement in the acuity of vision, but the latter is apt to be counteracted by the extreme smallness of the pupil. The photopsic manifestations also diminish under its use; but in many instances these effects do not last, and the recurrence of the symptoms again and again leads us toward operative interference. The mode of action of the drug is one of some interest, and a probable and plausible explanation is the following:

Eserine acts by drawing the swollen ciliary processes toward the axis of the eye, and thus opening up again Schlemm's canal and Fontana's space. If, therefore, there are adhesions of the iris to the lens, eserine acts unfavorably, for with swelling of the ciliary processes there is increased secretion, and by swelling of the vessels of the iris there results displacement of Fontana's space. In these cases atropia apparently acts well by the contraction of the dilator fibers of the iris drawing from the points of capsular adhesion toward the ligamentum pectinatum, and Fontana's space is made free again. This is Mohr's theory, and seems a plausible one. Probably most observers will now agree in recommending eserine to be employed as a prophylactic in those cases where the only sign of glaucoma is the suspicious condition of stasis in the anterior ciliary arteries, because of its power of increasing the intravascular tension at the same time that the intra-ocular tension is lowered, as the increased " vis a tergo " may overcome the stasis in the vessels through contraction of the vascular walls.

II. Jaborandi; Pilocarpine.—Since the discovery of the medical properties of this drug, and its introduction into general therapeutics, many observers in Europe and this country have instituted a series of experiments upon men and animals, to determine its physiological effects upon the system. While most of these investigations have been undertaken with reference to the entire organism, not a few have been confined to the study of these effects upon the eye, both in its normal and pathological conditions. Since the first extended examination into these physiological effects in 1875, observers have differed markedly in opinion as to the mode of action of jaborandi upon the eye.

According to Robin, it paralyzes the sympathetic. Albertoni thinks that it paralyzes sometimes the third nerve and sometimes the sympathetic. In considering the innervation of the iris in *myosis*, the incident or centripetal nerves are the retina and the ciliary filaments of the fifth nerve, the center where sensations are transformed into movements is the medulla oblongata, and the reflex or centrifugal nerve is the third nerve. In *mydriasis*, the incident nerves are filaments of the fifth nerve and the sympathetic, the center of transformation is the cilio-spinal tract, and the reflex nerve is the cephalic filament of the sympathetic. The question whether jaborandi paralyzes or stimulates the sympathetic is by some observers regarded as still unsettled. The increase of perspiration, salivation, and lachrymation are all in favor of its paralyzing action, which is the view held by Robin, Vulpian, and others. The prompt and transient myosis, followed by lasting mydriasis, points to irritation of the sympathetic nerve and motor oculi. The latter symptom is, however, reported by only a few observers, while the majority observed only a myosis of greater or less duration, varying with the size of the dose.

In this country there have been, as yet, no extended observations published upon the physiological effects of jaborandi and pilocarpine upon the state of the pupil and on the accommodation, but something has been done in the matter of employing the latter in ophthalmic therapeutics. At a meeting of the Boston Society for Medical Improvement, held January 28, 1878, Dr. H. W. Williams read a paper upon "The Use of Eserine and Pilocarpine in the Treatment of Diseases of the Eye," and subsequently presented the matter to the American Ophthalmological Society at its annual meeting in July, 1878. He used pilocarpine in the same class of cases as those in which he used eserine, and found the results somewhat analogous. The pilocarpine, however, proved less irritating than the eserine, and caused less supra-orbital pain and less effect on the accommodation, though the pupil was as much contracted. In a letter recently received from him, he states that he has never seen dilatation of the pupil follow its instillation. In a few cases it seemed to act with less than its usual energy as a myotic, but he never observed either primary or secondary mydriasis. In many cases no pain was experienced, while in others there was a slight pain in the eye or in the supra-orbital nerve. He has never observed any other than a transient spasmodic effect upon the accommodation.

During the past year the writer has made a somewhat extensive use of pilocarpium hydrochlorate in certain diseases of the eyes, both locally in the conjunctival *cul-de-sac* and hypodermically. Experiments were made with solutions of ½, 1, and 2 per cent. strength upon the iris and muscle of accommodation of normal eyes, with usually the following results:

Generally within ten minutes after instillation of a 2 per cent. solution into the eye, the pupil began to contract and rapidly reached its maximum, though sometimes the period was protracted to thirty and in one instance to forty minutes. The degree of contraction was never so excessive as after the instillation of eserine, and was rarely accompanied by any conjunctival or ciliary irritation. The effect upon the accommodation was very slight, and consisted in a spasmodic contraction of the ciliary muscle, which approximated the far point to the near point, and thus diminished the range of accommodation. In other words, the eye was made myopic in a very slight degree, and required a weak concave glass for distant vision. The glass demanded was never stronger than forty or forty-two inches focus. The effect was very transient, rarely lasting more than an hour, but the contraction of the pupil was of longer duration, lasting sometimes for twenty or twenty-four hours. In a few instances mydriasis was observed, but no change was noted in the retinal circulation. Occasionally there was some little conjunctival irritation set up, but this was regarded as mainly mechanical. In a few cases, though the primary effect upon the pupil was myosis, this was transient, and mydriasis soon occurred of a moderate degree, but more lasting. These observations agree with those of Albertoni, who regarded mydriasis as the constant secondary effect of pilocarpine. But, in two of these cases, a second series of experiments with the drug showed myosis always but no secondary mydriasis, so that I am inclined to think the former observations were either the result of negligence in the use of the drug or were due to an impure specimen. When used hypodermically in persons with normal eyes, simply for the purpose of observing its physiological effects, I have never seen any effect whatever produced upon the accommodation. When large doses were employed, myosis took place slowly and was of longer duration, but in moderate doses a contraction of the pupils was the exception, thus differing markedly from the effect produced by its instillation into the conjunctival *cul-de-sac.*

When employed locally in diseased eyes, the solution ordinarily used was of 2 per cent. strength, though occasionally I have employed a 4 per cent. solution. The preparation made for hypodermic injection was a 1 per cent. solution, which is much weaker than that used by Fuchs and other foreign observers, and the amount injected varied from twenty to forty minims. No local evil effects ever followed the injection, but occasionally some very unpleasant signs of general prostration followed almost immediately, such as vertigo, nausea, and prolonged vomiting, and once or twice actual fainting. The latter never lasted long, but the gastric symptoms were sometimes prolonged for ten or twelve hours.

The writer has used pilocarpine locally in most of the superficial or external diseases of the eye, particularly in affections of the cornea and conjunctiva, during the past year; that is, in about the same classes of cases as those in which eserine has been used. But he has not noticed analogous effects from its use, and the results have not been on the whole encouraging. In the vesicular or phlyctenular form of inflammation of the conjunctiva and cornea, pilocarpine, though non-irritating, did not exert any demonstrable effect upon the severity or duration of the disease. The contraction of the pupil almost always occurred with promptness, but it did not appear that the process of interstitial absorption was at all hastened. In the suppurative diseases of the cornea, such as abscess with or without hypopyum, or in keratitis with dense infiltration, the writer's experience with pilocarpine has not been encouraging enough to advise its continuance. He has never seen any reason to believe that it hinders diapedesis as eserine does, and can not say that any benefit has resulted from its local instillation in this class of cases.

In episcleritis and iritis of rheumatic origin, pilocarpine sometimes gives excellent results when administered hypodermically. In iritis, its local use is contraindicated on account of its causing contraction of the pupil, but it may be injected hypodermically in large doses for a number of days with excellent effect upon the pain and ciliary injection, and without producing any bad effect upon the pupil. In this variety of iritis, distinguished by its chronicity, obstinacy in resisting treatment, and frequent relapses, pilocarpine is a valuable remedy. In episcleritis, the main effect seems to be a tendency to the reëstablishment of the vascular equilibrium of the sclera and episcleral tissue, and a slow but steady absorption of the infiltration which so frequently exists in the meshes of the latter.

In interstitial keratitis, whether of syphilitic or strumous origin, which is met with in children, no results of any kind, whether favorable or adverse, have been noticed by the writer; and the same may be said of the drug in the chronic opacities or maculæ of the cornea, after corneal infiltration.

In glaucoma and certain forms of kerato-iritis marked by increased tension, a diminution of the intra-ocular tension has occasionally been noticed; but this was never accompanied by any improvement in the narrowed field of vision, and only once by improvement in the acuity of vision, and the latter only lasted while the pilocarpine was being used. It certainly does not take the place of eserine in this class of cases.

A number of foreign observers have spoken of the beneficial effect of pilocarpine upon opacities of the vitreous humor, when injected hypodermically. The writer has used the drug in this manner in a number of cases of this nature, in solutions of 1 and 2 per cent. strength, and in doses varying from twenty to forty minims. Precaution was taken to choose only those cases in which the opacities were of recent appearance, before they had time to become organized membranes. The cases were cyclitis and choroiditis, with both fixed and floating opacities in the vitreous and a general turbidity of the latter. The patients were all kept in bed in a darkened room; atropia was used in weak solution in order to keep the pupil dilated, and the pilocarpine was injected daily. In every instance the physiological effect of the drug was prompt and energetic, the perspiration appearing usually within four minutes, first upon the forehead, though in one instance first upon the soles of the feet. The heat of skin preceded the appearance of the perspiration by a slight interval. The flow of saliva was prompt and profuse, occasionally appearing before the perspiration. The latter lasted from an hour to four and even five hours, but the salivation was rarely prolonged beyond the first hour. In some instances the vertigo and sense of sinking and fluttering in the precordium were disagreeably prominent symptoms, and hence it was deemed advisable never to inject more than twenty minims of a 2 per cent. solution for the first dose. It was occasionally noticed that the increased flow of perspiration and saliva followed more promptly after a small dose than after a large one. Increased lachrymation was by no means a constant occurrence, though it did occur in the majority of cases to a slight degree.

In all the cases where there was a diffuse turbidity of the vitreous, this disappeared in a few days, and the fundus became more visible. In two instances of floating opacities there was a perceptible diminution in the number and size of the opacities, and the vitreous eventually became almost transparent. In one instance of membranous opacities of recent origin in one eye, which were apparently attached to the posterior capsule of the lens, with large detachment of the retina and small glistening spots like cholesterine upon its surface, there was very decided improvement after ten injections. The retina became partially reattached, the glistening spots disappeared, and the membranous opacities began to grow thinner and more delicate, and allowed reflected light to pass through them. In the other eye of the same patient there was diffuse turbidity of the vitreous and a partial detachment of the retina, both of which disappeared entirely during treatment, and thus allowed a diagnosis to be made of extensive exudative choroiditis, probably of syphilitic origin, which accounted for the lack of improvement in the vision. As the patient was kept in the supine position, and atropia was used, it is possible that the detachment of the retina might have disappeared even if pilocarpine had not been employed; but this would not account for the disappearance of the opacities by absorption, and here the influence of the pilocarpine was probably manifest. In simple detachment of the retina, uncomplicated by any other lesion, the writer has not seen any beneficial result from the hypodermic injection of pilocarpine. Whenever any improvement was noticed, it was probably due to the supine position in bed, which should be insisted upon until the effects of each injection have passed off, to avoid unpleasant consequences.

Though pilocarpine has not proved very valuable in the treatment of vesicular conjunctivitis and keratitis occurring in strumous children, when applied locally, yet there is something to be said for it when used hypodermically as an alterative, in which it is certainly most powerful. In those very obstinate inflammations of the cornea, with broad zone of infiltration and great intolerance of light, and profuse lachrymation, which are such common signs of the strumous taint, accompanied by sluggish circulation, thickened lips and alæ of the nose, and an acrid discharge from the nostrils, a subcutaneous injection of pilocarpine every day or every second day certainly aids in cutting short the duration of the disease and promoting absorption of the infiltration. There is one variety of this strumous keratitis, where a broad leash of vessels, occasionally shaped like an hour-glass, runs up from the corneal margin as far as the center and ends in a crescentic zone of infiltration which is somewhat elevated; and in this form of strumous keratitis, pilocarpine hypodermically is sometimes a useful adjuvant to the hot water and atropia, blistering, and cod-liver oil, for promoting absorption and disappearance of the infiltration.

To sum up briefly, pilocarpine used locally in the eye is sometimes of use in some of the superficial diseases of the cornea, but by no means to the extent that eserine is, and has no effect at all in the suppurative processes where eserine proves so useful. Used hypodermically as an alterative and absorbent, it is sometimes effective in cases of recent exudation and infiltration in the vitreous, and here is deserving of prolonged and repeated trials.

ART. III.—*Extravasation of Urine due to Lesions of Bladder.* By A. L. RANNEY, Adjunct Professor of Anatomy in the University of New York.

ETIOLOGY.—This complication may be due to one of four causes:

First. Direct rupture of vesical walls due to simple over-distention of the bladder, traumatic causes, perforating ulceration, caries, necrosis, foreign bodies.

Second. As a secondary result of perineal operations for lithotomy.

Third. As a secondary result of recto-vesical puncture.

Fourth. As a secondary result of supra-pubic puncture.

RUPTURE OF BLADDER.—The bladder, like all hollow organs, as the head, uterus, stomach, and intestine, is liable to rupture either from over-distention, external violence, or secondary ulceration.* It is doubtful, however, if rupture of the bladder from simple over-distention ever occurs, without some degeneration or lack of tone in the vesical walls, unless associated either directly or indirectly with some form of external violence.

Sudden spasm of the abdominal muscles upon an extremely distended bladder might be justly regarded as a complicating accident, greatly assisting in its rupture, as its results differ but little in reality from those of a blow or kick.

† Retention of urine, unless due to organic stricture of the urethra, never occurs in a healthy bladder to such an extent as to give cause for apprehending rupture of the organ, provided no external violence occurs simultaneously with its full distention. When excessive accumulation of urine, however, occurs in a bladder long affected with paralysis, enlarged prostate, cystitis as the result of stricture, or other diseases liable to cause weakening or degeneration of the vesical walls, it often requires no external violence to produce a rupture.

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* G. G. Guthrie, M. D., "Anatomy and Diseases of Neck of Bladder," London, 1834.

† Gross, "Treatise on Diseases and Injuries of Urinary Passages." Sir Henry Thompson, "Pathology and Treatment of Stricture of Urethra." Dewar, "Edinburgh Medical and Surgical Journal."

Thus a sudden slip, turning in bed, violent attacks of sneezing, vomiting, straining at stool or during an attempt at micturition, may, in this condition, produce the most disastrous consequences.

[*] Extreme external violence, however, is the direct cause of the large majority of cases in which this accident occurs. Sudden falls, with a highly distended bladder, from an elevation; falling over some sharp, projecting edge; severe blows or kicks in the abdomen; direct puncture of bladder by a ball, knife, or other missile, are among the numerous accidents included under this head.

[†] From a list of 78 cases, 48 occurred from direct violence and 15 from indirect violence.

Mr. Hey mentions a case where a pregnant woman became the victim to this accident five days subsequent to labor, from injury doubtless received during her confinement.[‡]

Mr. R. W. Smith, of Dublin, reports a case where an intoxicated woman ruptured her bladder by falling across the edge of a wash-tub, and died subsequently of peritonitis arising from urinary extravasation.

Baron Larrey reports a case of puncture of the bladder by the horn of a bull.

Dr. A. C. Post, of this city, reports a case of perforation of the bladder by a sharp, upright stick, over which patient was attempting to jump.[§]

Dr. Schulte, of Germany, reports a similar case in the "American Journal of Medical Science."[‖]

In both of these cases, however, the rectum became the means of direct urinal escape, and recovery followed.

Several cases of rupture of the bladder from falls from an elevation are on record.

In 1871, I met with one case, in a female, arising from jumping from a saddle while the bladder was fully distended, which resulted in death after three days' illness; and in 1872, one arising from falling upon the coupling pin of a cart, which terminated in recovery.

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[*] Stephen Smith, M. D., "New York Journal of Medicine," 1851.

[†] Stephen Smith's table.

[‡] Howship on "Urinary Organs," p. 253.

[§] "Medical Record," 1872.

[‖] "American Journal of Medical Science," N. S., vol. i., p. 517.

Many other cases of similar accident have, however, been at different times recorded, but they have no distinctive peculiarities or particular pathological interest.

Cases of gunshot wounds of the bladder are too numerous to recite in detail, but are usually fatal in their character from primary or secondary extravasation of urine.

PATHOLOGICAL APPEARANCES OF RUPTURE OF BLADDER.—The *post-mortem* appearances of bladders having undergone rupture reveal two distinct varieties :

First. Intra-peritoneal, or complete, in which the peritonæum has partaken in the laceration of the bladder, and afforded within its cavity an ample receptacle for the extravasated urine.

Second. Extra-peritoneal, or incomplete, where no laceration of the peritonæum has occurred.

This variety has been found to exist even when the seat of laceration in the vesical walls has been underneath its peritoneal covering, the vesical walls seeming to have slid away from the peritonæum, which appeared only as a translucent membrane lying above the infiltrated urine.

The rent varies greatly in extent, situation, and appearance in different cases, according to the variety of injury to which the rupture is due. It may be either longitudinal, transverse, or oblique, and varies in length from a small, scarcely apparent rent to a laceration of several inches. * It is most frequent on the anterior or posterior walls near the summit of bladder, next in frequency at the fundus, and last of all in frequency in the vicinity of the neck.

It is usually ragged, uneven, and sloughy in appearance, and occasionally pouting with an extension of the vesical mucous membrane, which hangs through it like a hernia.

The surface of the bladder is usually covered with lymph, and is often adherent to surrounding organs. Its cavity is generally empty, and its walls softened.

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* Differences exist in regard to the most frequent seat of rupture among authorities, Dr. Stephen Smith and S. D. Gross being my authority for this statement.

The intestines are glued together, the peritonæum injected, and its cavity or the subserous cellular tissue contains an admixture of urine, blood, and inflammatory lymph.

SYMPTOMS.—The symptoms occasioned by rupture of the bladder depend greatly on the seat and amount of laceration; also on the presence or absence of complicating hæmorrhage from injury of some large vessel.

In the majority of cases the first sensation experienced is that of laceration of some internal organ, usually felt in the region of the symphysis, and occasionally accompanied by an audible sound denoting rupture.

Immediately, as a rule, the sufferer sinks, unable to move; the most intense pain exists, with inability to micturate; occasionally fainting occurs, and, in cases associated with hæmorrhage, symptoms of collapse rapidly appear. In some instances, however, the patient has been able to walk for some distance before taking to bed or calling medical assistance. The face becomes pale, pulse small and fluttering, respiration hurried and difficult, skin cold, and covered with a profuse clammy perspiration.

An intense desire usually exists to micturate, with inability to pass a drop through the urethra; subsequent symptoms of peritonitis follow. The temperature becomes elevated, face anxious, legs drawn up and flexed at thigh and knee, with dorsal decubitus, tympanites, excessive pain and tenderness in abdomen. Delirium and hiccough rapidly follow, and mark the approach of death.

There are, as far as I know, only two reported cases of recovery from an injury of this character. One of these is reported by Mr. Rynd, of Dublin, in his work on "Stricture of the Urethra," and the other is reported by Professor Syme, of Edinburgh, in his contributions to the "Pathology and Practice of Surgery." *

Since the time of publication of this article, other successful cases may have been reported,† but the accuracy of the di-

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* Rynd, "Stricture of Urethra." Syme, "Pathology and Practice of Surgery," Philadelphia, 1866.

† Thorp reports a case of recovery by constant drainage through a catheter, "Dublin Quarterly Journal," 1868. Stephen Smith reports five cases of recovery as being on record.

agnosis may well be doubted, unless a subsequent *post-mortem* had allowed the same observer to substantiate it by a pathological specimen.

Death usually supervenes within two to eight days from the date of rupture, resulting from general peritonitis, though cases have existed where a month has intervened between the accident and the fatal termination.

It is, therefore, exceedingly important, in case suspicion of rupture of the bladder is excited, that an immediate diagnosis be fully made. This can generally be done by injecting the bladder with a saline solution to the extent of about a pint, and immediately exploring the cavity of the bladder with instruments, to ascertain if the fluid is retained within its cavity, or whether it has escaped through any existing laceration.

Should it be found to have escaped into the peritoneal cavity, no harm can have been done, as the extravasated urine will only have been diluted with a non-irritating solution, and a positive diagnosis can be made.

It has been suggested, and strongly advised as a means of preventing fatal results, that an immediate section through the abdomen be now made over the region of the bladder, exposing the rent, and that thorough washing of the peritoneal cavity be at once performed, the rent being at the same time pared and closed by small silk sutures, care being taken that these sutures do not pierce the mucous membrane of the bladder (in which case they might act subsequently as nuclei for stone), and the external wound closed in the ordinary manner after operations within the peritoneal cavity.

In cases of injury of the bladder by puncture or gunshot wound, the prognosis depends greatly on the situation and extent of the injury, and also on the amount of fluid contained within its cavity at the time of occurrence of the accident.

A gunshot wound of the bladder, if occurring when that organ is distended, is sure to result in extravasation of urine. Secondary extravasations may also occur subsequent to the accident when no evidences of primary infiltration of urine were present. Cases are on record where this has happened at periods of several days even after the injury, the aperture being usually closed in these cases by bits of clothing carried before or following the missile.

Whenever this accident occurs in the vicinity of the fundus, and urinary infiltration follows either immediately or at some subsequent period, fatal results are almost inevitable. It is therefore of the utmost importance, on being called to take charge of a wound of the bladder, to determine whether the seat of laceration has as yet allowed of the escape of urine, and if not, to spare no efforts in preventing its occurrence. A catheter should be immediately introduced and tied in, thus allowing the continued escape of urine through the urethra as fast as it is secreted, and the position of the patient so regulated that the urine shall gravitate away from the seat of injury. This often requires an almost perpendicular position, occasionally only a dorsal decubitus, the direction of the wound being the best and only indicator.

Many cases of successful termination have thus been recorded, a thorough reparative process having ensued, when, had neglect of this simple precaution been present, fatal issues would have been inevitable.

When bullets *lodge* within the bladder, even if extravasation of urine is prevented during the repair of the rent made by their entrance, still secondary ulceration at the base of the bladder is liable to occur through the "trigone." This accident is usually attended with great danger, save when the urine finds a direct escape into the rectum, which occasionally occurs, the rectum having become adherent to the bladder through inflammatory lymph, and its walls partaking in the ulcerative process.

This ulcerative process is not, however, an absolute necessity when foreign bodies are lodged within the cavities of internal organs or buried within their substance. Colles reports a case where a bullet remained within the cavity of a male bladder twelve months without causing ulceration or becoming incrusted with urinal salts.*

† Secondary ulceration, causing perforation of the bladder, may arise also from caries or necrosis affecting the pelvic

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* Colles, "Lectures on Theory and Practice," 1845, p. 143.

† Liston, "Traité des Maladies chirurg," qua. ed., tome ix., p. 41.

bones. Fractures of the symphysis may be followed by perforating ulceration of this organ. Severe falls, the patient landing upon the feet, may, by direct violence, drive portions of the acetabulum within the pelvic cavity, where they subsequently tend to the formation of abscess or ulceration.*

Malignant affections of neighboring pelvic viscera may in time cause perforation of the bladder from their ulcerative progress. In accidents of this description, however, little can be done as a preventive measure, save care and attention to the requirements of the patient and surgical interference, where, by its means, the liability to this complication may probably be arrested.

The last class of causes of extravasation of urine due to lesions of the bladder include 1, recto-vesical puncture; 2, supra-pubic puncture; 3, operations in perinæum for lithotomy.

This accident is especially liable in the two former. Some of the worst cases of gangrene and sloughing on record have followed those operations, since no inflammatory action has usually existed previous to the operation of a sufficiently extensive character to cause union of the bladder to surrounding tissues. The loose cellular investment of the bladder, with its open meshes, affords therefore but too good an opportunity for extensive infiltration of the escaping urine.

When this accident occurs after the operations for perineal lithotomy, it is too often from negligence on the part of the operator. Care should be always taken, when these operations are being performed, to freely divide all possible barriers to a complete and ready escape of the urine, otherwise pockets form in which urine collects, putrifies, and subsequently burrows into deeper tissues. The cellular tissue at the neck of the bladder is often thus affected without suspicion of its existence till fatal results are inevitable. Careful suspension of the scrotum should also be practiced, whenever the cavity of the bladder has been exposed through the perinæum. It is no uncommon thing to witness a rapid and serious infiltration of urine from oversight in regard to this simple precaution.

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* Article by Bickett in "Holme's Surgery."

In lithotomy and supra-pubic puncture, however, as a rule, an early diagnosis of secondary extravasation of urine can easily be made, as the infiltration is usually subcutaneous, and reveals its peculiar symptom even to a casual observer. Thus, through an early diagnosis, relief can often be afforded through free incisions and thorough cleansing of the affected parts, and possibly a fatal termination avoided. When, however, a secondary extravasation of urine follows recto-vesical puncture, a diagnosis is seldom made till the most serious consequences have arisen. In this case, the urine seldom shows itself subcutaneously, but burrows underneath the peritoneal covering of the first and second portions of the rectum, and infiltrates the loose cellular investment of the pelvic viscera.

A deep-seated sense of pain and heat is frequently the only evidence of the dangerous complication previous to that of active peritonitis. Extensive sloughing of the rectal walls occurs, and a fatal termination is almost inevitable, provided the urinary infiltration be of any appreciable magnitude. This dangerous complication is fortunately, however, comparatively infrequent. Formerly, when the large majority of cases of retention of urine were treated by puncture, few recorded cases of extravasation were discovered. This is easily accounted for, however, on simple anatomical grounds. The seat usually selected for puncture is a triangular space bounded laterally by the "vesiculæ seminales," and in front by the posterior margin of the prostate gland. Here extremely close and intimate relations exist between the walls of the bladder and rectum. The intervening space is almost non-appreciable, and the connective tissue almost absent; hence the communication is usually too direct, provided a sufficiently large trochar is used, to afford any appreciable barrier to free escape of the urine.

Should, however, the puncture be made too far forward, through the substance of the prostate gland, or laterally beyond the limits of the "trigone," dangerous sequelæ are liable to occur, and the physician can not be too careful when resorting to surgical interference in this locality.

ART. IV.—*Sewer-Gas in Houses: Its Origin and Prevention.* By E. N. DICKERSON, New York.

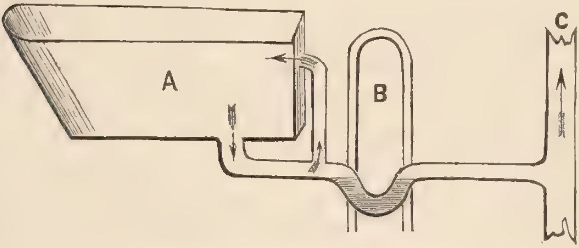
IT has been generally supposed that the "sewer-gas" in houses is generated in the street sewers, and forces its way through the soil-pipes into the apartments; and, as a consequence, the attention of engineers has been directed to devising means for preventing this supposed ingress, and the true origin of the evil has been generally overlooked, and no adequate remedies provided against it.

There is no such thing, practically, as a *pressure* of sewer-gas in the street sewers, inasmuch as they are open to the atmosphere through man-holes and other apertures, which permit the gas to escape freely as fast as it is generated; and any ordinary trap, interposed between the house and the sewer, is entirely sufficient to prevent the gas in sewers as usually constructed and arranged from forcing its way into the house. The true source of this evil is to be found in the *drain-pipes* of the house itself, whose interior surfaces are coated with fermenting matter deposited there from the fluids and solids which pass through them; and so great is the productive power of these coatings, that *less than one half of a square foot* of the interior of a pipe, which never has had anything in it except the discharged water from a bath-tub in use about six months, will generate enough sewer-gas to render a house unfit to occupy, as I have demonstrated by conclusive experiments which may be repeated in almost any house where there is a bath-tub.

As usually constructed, bath-tubs are provided with an overflow-pipe, leading out from the tub near its upper edge, through an opening in the metal which is covered by a stellated shield. This pipe joins the discharge-pipe, passing out from the bottom of the tub and leading to the soil-pipe; and a trap is then placed in that pipe just beyond the junction of the two. When this trap is filled with water, communication is intercepted between the bath-tub and the soil-pipe, but there is an open communication from the discharge aperture in the bottom of the tub through the overflow-pipe to its aperture near the top of the tub, so that air can be circulated through this passage. By applying to the discharge opening in the bottom of the tub an India-rubber tube, or any other convenient pipe, and blowing through it with the breath, the gaseous contents of this overflow-pipe will be driven out through the overflow aperture, and the sickening odor which will be perceived will demonstrate the existence of sewer-gas in these pipes. The "shower-pipe" usually supplied with bath-tubs is a good thing for this experiment, placing the perforated end over the hole below, and blowing into the other end.

The accompanying diagram, Fig. 1, illustrates the arrangement as it is ordinarily used, and also shows the upper loop of the hot-water circulating pipe in my house, which, when a new water-back had been placed in the kitchen range, had its temperature very much increased, thereby inducing an ascending current of air by rarefaction in the overflow-pipe of the bath, carrying with it the sewer-gas into the apartment, and no doubt also promoting the growth of the low organisms in the pipe itself by the rise of the temperature. This chance experiment led me to the observation of the great gas-producing power of so small an amount of pipe surface.

FIG. 1.



A, bath-tub; *B*, hot loop; *C*, soil-pipe.

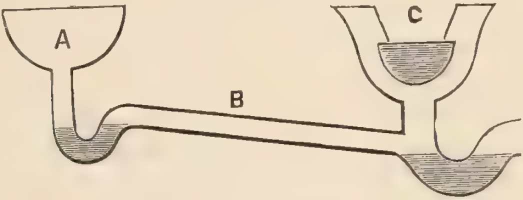
I have removed this overflow-pipe, closing up the discharge aperture and substituting the old-fashioned stand-pipe, which serves both as a plug and an overflow-pipe; and I have examined the interior surfaces of these discharge-pipes, and find them coated with extremely minute vegetable organisms, not observable by the naked eye, but very distinct and well defined under a microscopic power of about two thousand diameters.

As the plumbing in houses is *generally* organized, the great amount of sewer-gas generated at the surfaces of the entire system of pipes forces its way into the house; because the whole pipe system is closed up inside of the house, except where the basins empty into it, and a deep trap is placed at the lower end of the soil-pipe, and between the house and the sewer. As the gas is generated in this ramified retort, it must either force its way out through the street trap, or through the feebler basin traps of the house, or through defective joints in the plumbing work; and, inasmuch as the street trap resists the most, the gas goes into the house.

If, however, the pipe system is open to the air through the roof, as it is now frequently made, then the excess of generated gas, after the pipes are fully charged, will pass out from the opening above; but the pipes themselves will be still fully charged with sewer-gas, which is constantly being supplied from the fermentation going on everywhere in the system, and it will escape through any openings into the house, and will diffuse through the water of the traps, even though all of the pipes are in communication with the soil-pipe opening at the roof. What escapes from the opening at the roof is obviously only the excess which is generated momentarily, just as steam blows out at the safety-valve while the boiler is fully charged. How much this amounts to in any house may be estimated by going on the roof and observing the action at the aperture of the soil-pipe in a case where there is a street trap cutting off the sewer, and where, therefore, all that escapes at the roof is momentarily generated in the house itself. The odor which is diffused through the atmosphere for a considerable distance from the pipe aperture is sickening; and one whiff of it in its concentrated form, as it escapes from the pipe, will nauseate a strong stomach, and generally produce stricture at the forehead and headache, thus showing its terrible effect upon the human system.

But, generally speaking, and in all cases where I have examined the construction in large houses, there are considerable lengths of drain-pipes which lead from wash-basin traps into water-closet traps, and which therefore are not in direct communication with the soil-pipe. This construction is preferred by plumbers, because, under the theory that "sewer-gas" comes from the sewers, and must be intercepted in its passage to the basins, this arrangement supplies *two traps* instead of one, and therefore makes it certain that no street sewer-gas will force its way through both, even if it blows in through the street trap. In these double-trapped drain-pipes all the gas that is generated is under pressure, and it escapes through the weaker basin or bath traps, although there may be no pressure in the soil-pipe itself beyond the second trap; and these pipes are a fruitful source of sewer-gas in houses.

FIG. 2.



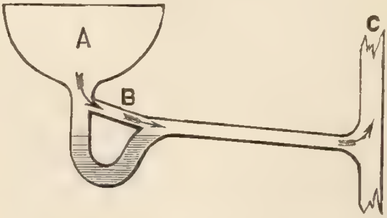
A, wash-basin; *B*, gas-generating drain; *C*, closet.

Basin water-closets, also, are prolific sources of gas under any possible system; because the trap under the basin is always charged with excrements, and the fermentation which occurs from the basin side of the trap must necessarily expel the gas, either through the water-seal of the basin, or out of the open hole in the hopper through which the spindle that works the basin passes. These closets are an abomination under any circumstances, and should be always removed and substituted by some of those closets of the Jennings type which have no traps, and in which an India-rubber-seated valve closes the passage air- and water-tight, and is covered by a water-seal.

The true remedy for all these evils, and it is entirely effectual, is to reduce by exhaustion the *pressure in the soil-pipe below that of the atmosphere*, at the same time supplying the soil-pipe at its bottom with fresh air from the cellar constantly flowing through it, whereby all the gas generated in it is diluted and swept away as fast as it is made, and the interior of the pipes is dried by the warm air flowing in below, and as a consequence fermentation is arrested for want of moisture, one of its essential conditions. Then see to it that all the drain-pipes leading into this soil-pipe from the basins and baths have only one trap in them, and that one *as near as possible to the bottom of the basin or bath;* and that there are no traps under water-closets in which to store excrements, and no overflow-pipes, such as described above, to the bath-tubs; and the house will be effectually protected against sewer-gas.

Under these circumstances the only source of gas not perfectly guarded is the short length of pipe between the plugs and the traps in the basins and bath-tubs, and the overflow-channels in the basins. These may be made harmless by connecting them, by means of a small tube having in it a flap-valve, with the drain-pipes beyond the traps, as shown in the annexed sketch, Fig. 3, the effect of which will be that a slight current of air will constantly pass through the basins into the soil-pipe, removing with it all the gas generated on these small surfaces. My observations and careful experiments, however, convince me that this last precaution is practically unimportant; because, first, these surfaces need be very small, and secondly, they are not exposed to any current of air passing through them, as is the overflow-pipe of the bath-tub; and as the gas is probably heavier than air, it does not rise in sufficient quantities to overflow the basins or bath-tubs.

FIG. 3.



A, wash-basin; *B*, air-tube; *C*, soil-pipe.

Of course, the perfection of the system would be attained in having exhausting power enough to dispense with all basin traps entirely, thereby causing a current of fresh air to flow downward constantly through the discharge-pipes; but this is not easy to arrange, in view of the various disturbing operations occurring in the different parts of a ramified pipe system. I am experimenting, however, on this problem, and am of opinion that it is capable of simple practical solution.

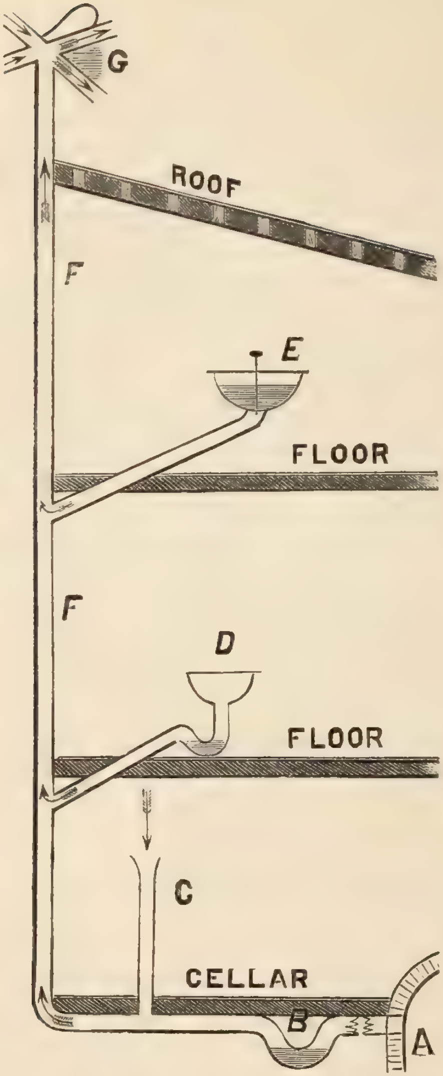
As I have the system now in operation in my residence, and have had it for nearly two years, a current of air will at all times flow downward through the discharge-pipe of any wash-basin in the house, if the trap under it be emptied of water; but there is not exhausting power enough to enable me to empty all the traps in the house at once, and maintain an air-current through all.

With this system, it will be perceived, the traps only operate to prevent the air of the house from flowing into the soil-pipe, and not, as in the ordinary system, to prevent the sewer-gas in the pipes from flowing into the house, which it has no tendency to do.

Objections against this system are constantly made by "practical" people, to whom the idea of opening the soil-pipe into the cellar is so contrary to all experience, that it suggests at once an outflow of sewer-gas as it would happen under the ordinary system, and who are clearly convinced that sewer-gas in the cellar would be the result of emptying down the soil-pipe a pailful of water, which, they think, ought to operate as a piston compressing the gas, and driving it out before it into the cellar.

A moment's reflection will prove the fallacy of these objections. The soil-pipe is at all times *full of fresh air*, which is flowing up through it; and if the current were reversed for a moment, the only result would be that the air which had just flowed into the pipe would be expelled, but there would be no sewer-gas to come with it. Experience, also, in several houses which have adopted the system, answers the objections. In all cases the cellar is purified by the outflow of its air, and no sewer-gas ever escapes. An inspection of the system as it is working in my house will remove any doubts from the mind of the most skeptical, and prove that sewer-gas is effectually prevented by it. Of course the apparatus must be well made, and it will always perform its duty.

FIG. 4.



A is the street sewer. *B* the sewer trap of the usual kind, the deeper the better; but almost any trap is good enough. If any gas passes the trap from the sewer, it is carried off with the air flowing into the soil-pipe from the cellar. *C* is the stand-pipe, opening into the cellar, and entering the soil-pipe below the cellar floor. *F* is the soil-pipe itself, passing out through the roof and the top of which ought to rise high enough to be above adjacent roofs. *G* is the swinging, ventilating cowl. *D* is a wash-basin with trap as usual. *E* is a trapless water-closet, from which the deposits flow directly down the soil-pipe, which is sealed with water and a tight valve until opened in use.

Sketch No. 1 shows the bath-tub overflow; No. 2, the very usual case of a drain-pipe double-trapped; No. 3, the prevention of the trifling evil due to the small section of pipe inside of the basin traps; and No. 4, the entire improved system. The small pipe marked *B* in Fig. 3 should be very small—not more than a quarter of an inch in diameter.

Clinical Lecture,

Delivered at the Medical Department of the University of the City of New York. By Alfred L. Loomis, M. D., Professor of Pathology and Practice of Medicine.

(Reported for the New York Medical Journal.)

HEART-CLOT IN PNEUMONIA.

Gentlemen: The lungs which I presented to you this morning were taken from the body of a man who died recently at Charity Hospital, on the third day after his admission there. When he entered the hospital the diagnosis of pneumonia, situated in the upper part of the left lung, was made. He was so feeble that the necessary physical examination could be made with difficulty; but still he appeared to be doing pretty well until the third day, when the orderly permitted him to get up out of bed and go to the water-closet, where he died very suddenly. At the time of his death the physical signs were those of the second stage of pneumonia, with those of commencing third stage in some parts; and when the autopsy was made, it was found that a considerable portion of the lung was solid, so that it no longer crepitated when pressed between the fingers, as is the case with normal pulmonary tissue. The lower portion of the upper lobe was already in the third stage, as you will see when I pass the specimen round; while nearer the apex the disease was as yet in the second stage, or just passing into the third. The extreme apex, on the other hand, was still in the first stage of the disease; so that there could be no doubt that the pneumonia had commenced at the base of the upper lobe, and thence extended upward throughout the lobe. This is a very interesting specimen, for it exhibits within a limited compass the gross appearances of the three stages of pneumonia.

The other lung was found to be everywhere covered with very thick pleuritic exudation, and, being bound to the chest-walls by numerous and extremely firm adhesions of long standing, was to all intents and purposes completely carnified. About the left lung also, I should not neglect to remark, there were well-marked evidences of acute pleurisy. The inflammatory process extended to the base of the lung, and not only involved the diaphragmatic pleura, but the inflammation had extended through the diaphragm, and involved the capsule of the spleen as well.

The autopsy also revealed still further disease, viz., well-marked evidences of acute pericarditis; there being a considerable effusion into the pericardium, with numerous flakes of organized lymph floating in it. In addition, there was found in the right ventricle an exsanguinated coagulum, and in the right auricle a dark clot of large size. As you have been informed, the man died suddenly; and from the above *post-mortem* appearances, I think you will agree with me that there was quite enough the matter with him to destroy life. The right lung must have been altogether useless; and as the whole upper lobe of the left was consolidated, all his respiration must have been performed with the lower portion of that lung. Both the heart and the lungs being thus crippled, it was as much as they could do to perform their functions while the patient was in a state of rest; so that it was his getting up and walking to the water-closet which was unquestionably the immediate cause of his death.

The question now arises, Was the heart-clot responsible for this? For my own part, I do not hesitate to say that I am one of those who do not believe very much in that sort of thing. I do not deny that in one out of a vast number of instances a clot may plug up the pulmonary artery and cause death; but such an occurrence I believe to be exceedingly rare. But you must remember that you can not have heart-clot without heart-failure: it is not till the heart itself fails that these clots are formed. There are certain exceptions to this, as in puerperal peritonitis and in pyæmia, for instance, where there is a profound alteration in the blood; but it is not of this class of cases that I am now speaking. In ordinary pneumonia I hold that the heart-clots are always of the character seen in this case, that they owe their existence simply to heart-failure, and that they have nothing whatever to do with the causation of the patient's death. I know that many are of the opinion that this mode of death is attributable to heart-clot; but at the same time I must confess that I believe those expressing such views can not sustain them by *post-mortem.*

Others get around the matter by claiming that the heart is "paralyzed" in such cases. The heart, however, is no more paralyzed than is the whole system when death overtakes the patient. This is the only sense in which it is paralyzed; and I do not wish you to be led into any such mistakes as these. The truth of the matter is, that the heart carries on its work with an enfeebled circulation just as long as it can; and when it is no longer able to do this, it stops work.

You hear from practitioners of medicine, and read in the books and journals, very much about giving carbonate of ammonia (and often in large doses) in pneumonia, with a view of preventing heart-clot. From what I have just said, however, you will readily see that this is all theory. You might as well (and better, I think) give carbonate of ammonia for the purpose of preventing the pneumonia itself as for the prevention of heart-clot. If it does any good at all in pneumonia, it is because it acts as a stimulant, and in this way helps the heart perform its work. But as to its preventing heart-clot, I am certainly unwilling to subscribe to any such fanciful opinion. In the history of pneumonia there generally comes a time when we need a diffusible stimulant, and the only question in regard to the carbonate of ammonia is this, Is it the best stimulant at our command? For my own part, I do not believe that it is, and personally I very much prefer to rely upon champagne. When the time comes to give carbonate of ammonia, it is time to give champagne; and the latter, as I have just said, I believe to be much the better stimulant of the two.

I trust, however, that no one will misunderstand these remarks in reference to heart-clot. I do not deny that clots do form in the heart in pneumonia, but I believe that this is only the case immediately before death, and that it is not due to any change in the blood itself. I hold, therefore, that it is useless to try to prevent such a thing by the administration of drugs, with the exception of such as act merely as stimulants, and thus increase the power of the heart.

ANEURISM OF THE THORACIC AORTA, WITH COMPLETE SOLIDIFICATION OF THE LUNG RESULTING.

Gentlemen: This is a patient whom many of you have seen before; but I introduce him again in order that you may see the progress which the disease is making. You will remember that when he was here last a differential diagnosis was made between aneurism of the thoracic aorta and cardiac aneurism, and that we decided in favor of the former; the chief point which induced us to do so being that the seat of disease was not in the line of a cardiac aneurism. It has always seemed rather wonderful to me how these aneurisms in their growth cause absorption of bone. I have seen the bodies of vertebræ almost entirely disappear under the pressure occasioned by their presence, so that nothing but the merest shell was left. They are also liable to cause absorption of the ribs, and the sternum sometimes disappears very rapidly in consequence of the pressure to which they give rise.

Since the man was here before we can notice quite a perceptible change. At that time there was apparently but one point of enlargement, while now there are two; the original one being still seen toward the median line, and another having made its appearance more to the left (though not quite so far over as the line of the nipple). Another change is, that there is now more marked motion in the tumor, a strong dilating pulsation being felt on it.

Again, the skin over the most prominent point is beginning to grow shiny, showing that the aneurism has a stronger tendency toward the integument, and that the latter is already being put upon the stretch. The superficial veins upon the neck and upper part of the trunk are considerably enlarged. The radial pulse can be felt in both wrists. The patient suffers at some times more than at others, and is taking about four ounces of the United States solution of morphia a day.

When we come to make an examination of the left lung, we find that vesicular respiration has now entirely disappeared; while before, you will remember, it was still present, although quite faint. Diminution or absence of vesicular respiration is one of the diagnostic points in cases like this, because it shows pressure upon the bronchial tubes. The vesicular murmur grows less and less marked as the aneurism increases in size, encroaching upon the lung both before and behind. Another evidence of obstruction of the bronchial tubes here is shown in the fact that vocal fremitus is also altogether absent. There are, then, distinct signs of consolidation of the lung, and we can not but regard them as among the most positive points of the diagnosis of thoracic aneurism here. As has been stated, this consolidation is due to the pressure of the aneurism upon the bronchial tubes, and the question therefore now arises, How does this pressure give rise to such an effect? What is really here present is a pneumonia which is of a catarrhal character, and it is produced in the following way: The pressure upon the bronchial tubes occasions a hyperæmia of the capillary plexus surrounding the alveoli, and this is followed by an exudation, or rather a filling up of the alveoli. This is not an inflammatory action, like that seen in croupous pneumonia; nor are the cells of the exudation of exactly the same character as those found in true catarrhal pneumonia. The exudation more nearly resembles that resulting from disease of the heart, although it is of much more rapid production.

From experiments made upon animals, in which irritant vapors of various kinds have been employed for the purpose, it has been conclusively demonstrated that croupous pneumonia can not be excited by any sort of inhalation which ordinarily gives rise to bronchitis. If anything beyond bronchitis has thus been set up, it has invariably been found to be catarrhal pneumonia. Therefore we come to conclude that croupous pneumonia must depend on some constitutional cause; and the experiments of investigators during the last year or two go far to show that it is in reality an infectious disease—in other words, that croupous pneumonia is a fever whose peculiar characteristic and local manifestation is pneumonic consolidation. When we take into consideration the days that mark the different periods of the disease, and notice how its cause tallies with that of other febrile affections, we can not fail to be struck with the plausibility at least of this view, and to recognize the strong probability that it is a constitutional disease. No such thing obtains, however, in the catarrhal pneumonia which is set up by the introduction of an irritant through the bronchial tubes. In such a case as this, the interference with the bronchial tubes first causes partial collapse of the alveoli; after which follows a state of hyperæmia, and, finally, the exudation. The latter, however, as has been previously stated, differs somewhat from that seen in ordinary catarrhal pneumonia. At length we have complete solidification of the lung resulting, with absence of vocal fremitus and bronchial respiration. This state of affairs has now been reached in the present instance, because all air is excluded from the lung, and vibrations can no longer be transmitted down the trachea and through the ramifications of the bronchial tubes. We now have all the signs of subacute pleurisy; and more than once have trocars and exploring-needles been plunged through the chest-walls, in cases where aneurisms existed, but were not sufficiently large to excite notice, or else escaped detection through carelessness on the part of the medical attendant. An interesting case, in this connection, occurred about a year ago in my service at Bellevue Hospital. The house-physician called my attention to a patient just admitted, who was suffering from a hacking cough and considerable dyspnœa, which was greatly increased when even the slightest exertion was made. From the flatness on percussion, feeble respiration, and absence of vocal fremitus, he had, correctly enough from the physical signs present, made the diagnosis of subacute pleurisy (though I had not then the time to make an examination of the man's chest myself); and it was proposed on the following day to perform paracentesis thoracis, in consequence of the patient's exhausted condition. During the night, however, he died very suddenly; and when the house-physician, who had been hastily summoned, reached the ward, he found the floor in the vicinity of the bed covered with blood. An aneurism, which had entirely escaped notice, had ruptured into the bronchial tubes and trachea. This had caused such complete solidification of the lung that the physician, on making a physical exploration of the chest, was convinced that there was subacute pleurisy present, and so did not attempt any further investigation. It is, I would have you understand, by no means easy, however, to make the diagnosis of small aneurisms in the descending aorta.

In the present instance the tumor is of such large size that there is no possibility of making a mistake; but it is an interesting case, because it enables me to bring out the points of diagnosis in similar ones in which the condition is not so marked, and to put you on your guard against getting into error in the future.

As previously intimated, the shining appearance of the skin on the aneurismal tumor which is now beginning to be noticeable is significant of the approaching final event of the case. I well remember the first case of this kind which came under my care at the dispensary where I attended as the pupil of the late Dr. Camman. I had it under observation for more than a year and a half; when the tumor, which was situated upon the right side, began to grow blue and shiny, and I shuddered each time that I looked at it to think of the inevitable doom that must so soon overtake the patient. At the suggestion of Dr. Camman, I had made for him a cup-shaped shield of lead, softly padded, which he wore over the aneurism for four or five months. I have no doubt that this precaution somewhat delayed the final catastrophe; but the sudden rupture came at last. It is worth while to note, in connection with the present case, how comparatively comfortably the patient has been able to get along with only one lung.

HYPOCHONDRIASIS.

Here is a man in middle life, and apparently of not a very high order of intelligence, who says that he has been sick for a long time, "on and off." He complains principally of pain seated at the pit of the stomach, and of "weakness about the stomach and chest." He also feels a sinking sensation referred to the stomach, but does not vomit unless he has headache, which occurs about once a month or so. This vomiting is not very severe, and is probably due to an ordinary bilious attack recurring from time to time. When I ask him what else he complains of, he replies: "Weakness in the feet and pains in the knees, shoulders, jaws, and sometimes all over the body." He has never had any swelling of the feet, nor of the joints, although he sometimes suffers from pain in the latter. Occasionally he has some dizziness and vertigo, he says. When questioned in regard to loss of flesh, he states that he has lost "all his flesh." He first consulted medical advice about five years ago, but says he began to feel badly a long time before that. During the last two years there have been but few days in which he has not taken medicines, and these, he says, have been principally of a strengthening kind.

He has never had chills and fever, as far as he knows. Since he has been complaining he has resided part of the time in this city, and part of the time in Westchester County, New York; but he says there was no malaria in the locality where he lived. While in the country, however, he used to suffer from headaches so severe that they laid him up for some time; and the pain was worse in the daytime than at night. He does not remember ever being out of his mind at these times. He has not done any work for three months, and states that during the last two years he has not been able to work more than half the time. When asked if he ever had any serious illness besides that which he has mentioned, he says that he has had two attacks of pneumonia, two and four years ago respectively. He was sick five weeks the first time and two weeks the second time; and the first pneumonia was on the left side, while the last was on the right. He has three children, who are all healthy, and his family history is also good. He states that he does not drink, and that he does not suffer from involuntary seminal emissions; nor has he indulged in venereal excess.

Well, it would be pretty difficult to make out a diagnosis from the history which you have just heard; and so we will now institute a physical examination, and see if that will throw any light on the case. In the first place, we ascertain that there is nothing abnormal about the pulse, and that the tongue is in very fair condition, while the countenance of the man is not particularly indicative of disease. On looking at the gums, we do not find any evidences of the action of either mercury or lead upon the system.

Before going on any further with the case, I should like to remark that this patient belongs to a class which will come under your observation very frequently in the future, and which it is of great importance that you should thoroughly understand. I presume that about one fourth of the physician's ordinary practice is concerned with just such cases as that now before you, and they generally cause more trouble than any others. You may be very much interested in remarkable cases of aneurism and other unusual disorders; but you will meet with a hundred such cases as this where you will see one of aneurism. It is therefore a matter of some consequence that you should be able to recognize them when they come in your way, and that you should know how to deal with them properly.

The man now being stripped, we make an inspection of his chest, and find that it seems to be quite well developed. The left shoulder is seen to be a little higher than the right, and there is a slight lateral curvature of the spine. In fact, there is a double curvature in opposite directions; but these compensating the one for the other, the trunk remains pretty nearly straight. The apex-beat of the heart is in its normal position, and I can not see that there is any unnatural pulsation anywhere about the thorax or abdomen. When the patient takes a deep breath, we find that abdominal respiration is good, and that there is even more than the ordinary expansion of the chest. When percussion is practiced, we find that there is a little dullness over the upper part of the right lung in front, as compared with the left; but this may be nothing more than the natural condition, for you must remember that normally the right apex is slightly duller on percussion than the left. Still, the patient has had pneumonia; and as with this there is very apt to be more or less pleurisy, it is quite possible that a little permanent thickening of the pleura in this portion may have resulted in consequence. Nothing out of the way is perceived when auscultation of the chest is made, and we may therefore exclude any present disease of either the lungs or heart.

The dullness on percussion is normal in extent both in the hepatic and splenic regions, and on making a careful examination of the stomach, as well as the whole abdomen, I am not able to detect any tumor, or anything else abnormal. In addition we find, so far from there being much emaciation present, that all the thoracic and abdominal muscles are very well developed.

The physical examination being, then, a negative one, and all the symptoms complained of being of a very vague and uncertain character, we can arrive at but one conclusion, and that is that the man is in reality suffering only from hypochondriasis. This is the only diagnosis at which we can arrive after a thorough investigation of the case. The only thing needed to make it complete is an examination of the urine; but as we have not discovered anything whatever to point toward disease of the kidneys, I think it can be safely dispensed with here.

Now you see, I trust, why this is such an important case for you to understand. I do not doubt that the man suffers from pains in various parts of the body at times; but what man or what woman is free from them? Patients of this kind go around from one physician to another, vainly seeking relief from what they imagine the most serious diseases, and often injuring their health to no small extent by the vast quantity of medicine which they take. It is your duty to come out perfectly frankly and tell them that they have no organic trouble whatever, and that the less medicine they take the better. As to our friend here, we will endeavor to impress upon him the fact that, notwithstanding the ills that are so tremendous to his imagination, he is a perfectly healthy man. We will tell him that he must stop thinking about himself and must stop dosing himself; that he must keep away from the doctors; that he must go on with his work; and that when he feels his pains coming on, he must work all the harder until they go away again.

Clinical Records from Private and Hospital Practice.

I.—*Case of Extra-uterine Pregnancy.* By N. Chapman, M. D., Glymont, Md.

The interest of the following case is comprised in the anomalous position of the fœtus, and the illustration it affords of the capacity of nature to overcome seeming impossibilities.

Mrs. B., married, aged about forty, mother of four children, the last child born October 26, 1874.

Menses established in due time; had her last menopause about the 15th of May, 1876, followed by the usual signs of pregnancy.

I was called to see her November 27, 1876, for some trouble not connected with her pregnancy. While with her, she requested me to examine her abdomen, saying that it did not look as it did in her previous pregnancies. I did so by palpation alone (for reasons hereafter to be mentioned), and found an oblong tumor lying in the left lateral half of the abdominal cavity, between the umbilicus and left lumbar region, arising out of the pelvic cavity, toward the left inguinal region, reaching nearly up to, but not under, the lower border of the ribs on the left side. The apex of the tumor extended into the pelvic cavity.

By careful palpation I was satisfied, as far as one is justified in forming a conclusion from such an examination, that it was a case of abdominal pregnancy. While manipulating the tumor, I felt the movements of the fœtus, though the patient said she had not felt them. Concealing my apprehensions, I informed her that I would examine her condition more thoroughly at some future time, and left her.

On the night of the 28th of November, 1876, I was called to her in great haste, and upon arrival was informed that while sitting quietly in a chair she experienced a sudden gush of blood from the vagina, and had been bleeding profusely since. Upon examining the bed and person of the patient, I found the statement had not been exaggerated. I immediately made a digital examination, found the os patulous, and dilated about an inch and a half. Upon passing my finger into the womb it came in contact with a body soft and rugated to the touch, the characteristic sensations produced by contact with a retained placenta. I concluded there were two and a half inches of detached surface exposed. I found by sweeping my fingers around the edges that it was firmly adherent.

It immediately struck me that it was a case of abdominal pregnancy (with the placenta implanted over the os), similar to the case of Helen Zopp, recorded on page 239, "Cazeaux's Obstetrics," third American edition.

While making the examination, in order to form an adequate conception of the amount of hæmorrhage, I placed my conjoined fingers under the posterior lip of the os, and could feel a stream of blood which seemed as large as a goose quill trickling through my fingers. The undetached position of the placenta over the os being the proper condition for the use of the tampon, I immediately gave a large dose of tincture of opium, in order to gain time for reflection and to obtain professional assistance.

Watching the effect of the tampon, I was gratified to find the external hæmorrhage was controlled, and as long as the placenta remained *in situ* I had no fears of internal hæmorrhage, though the womb was carefully watched. Dr. J. W. Thomas came to my assistance about 10 A. M. the next day. After informing him in the anteroom of the circumstances of the case, he suggested that probably upon examination I would not find the state of the womb (i. e., dilatation and hæmorrhage) which had existed when I used the tampon.

At my request he removed the tampon, and reported the os entirely closed and comparatively no hæmorrhage. Upon examination, I was agreeably gratified to find the statement correct. Enjoining quiet and strict observance of the recumbent position, with an occasional dose of deod. tinc. opii and tinc. ferri, I took my leave. The hæmorrhage ceased altogether in about a week. I then permitted her to get up and move about her room, avoiding all exciting and disturbing influences.

Here I deem it best to say what I have deferred in regard to the peculiar temperament of my patient, which influenced my actions when I first observed her condition, and my subsequent management of the case.

By nature morbidly apprehensive, her mother having died in childbirth, her previous pregnancies had been periods of the utmost despondency, and she was disposed to imagine the most unreasonable and improbable evils for herself and children. I therefore did not make a vaginal examination when first consulted by her, my first duty being to allay her anxiety. At the same time I thought I would have ample opportunity to critically examine her case, and I had to refrain from further examination until toward the close of the eighth month of her pregnancy. In the mean time I placed her upon an active tonic treatment, with nourishing and easily digested diet. I waited until the 20th of January, 1877, before examining again. Having then passed the finger to the os, I was surprised to find that it was cartilaginous to the touch, with all the characteristics of the non-gravid uterus, being only a little larger than normal.

Proceeding then to examine the abdomen, I found the tumor much smaller, and that it had risen out of the pelvic cavity, was disk-shaped, about five by six inches broad, to a considerable extent movable, but with attachments on a level with the umbilicus. I asked the patient if she had observed that her abdomen was smaller than it was at the time of her hæmorrhage. She then for the first time informed me that it was her custom in all her previous pregnancies to make an abdominal measurement monthly, and that she had discovered since the 23d of December previous that her abdomen was gradually lessening in size. I then for the first time learned that the fœtus was dead and had become encysted, a fact which I should have anticipated from the amount of hæmorrhage, and have inferred from the evident septic poison under which her system was laboring, manifested by the dirty greenish hue of her complexion since the hæmorrhage. At no time after the cessation of hæmorrhage was there any vaginal discharge. The placenta was removed by absorption.

On April 4, 1878, I was again called to this patient, and informed that she was pregnant and was in her third month.

I found by examination that the womb in its size corresponded to her statement as to the stage of her pregnancy. There being considerable uterine hæmorrhage, I prescribed the usual remedies, and informed her that I thought it more than probable she would have an abortion, which she had on the following day, the fœtus being sufficiently developed to distinguish its sex. I availed myself of the opportunity to examine the condition of the tumor, and found it was somewhat smaller, apparently about four by four and a half inches in width. It still preserved its disk shape and umbilical attachments.

She informs me by letter of this date (January 31, 1879) that it is about the size of an infant's head; how old an infant, she does not say.

The hypercritical may insist that my original diagnosis was not sufficiently established—that I did not use all means to eliminate error, such as vaginal examination, passing the uterine sound, etc.

I confess that it was my intention to do so had there been another opportunity, not to remove any doubt but to confirm my opinion; but not having done so did not cause me to question the accuracy of my diagnosis when I discovered the presence of the placenta in the womb.

In dismissing the subject I will quote from Professor T. Gaillard Thomas's article upon abdominal pregnancy in the January number of the "American Journal of Medical Sciences," in reply to similar caviling:

"There may be those who will say that these evidences were too meager for diagnosis. All I have to say in reply is, that I thought otherwise, and had confidence in my belief."

Notes of Hospital Practice.

ST. FRANCIS'S HOSPITAL.

Service of Dr. JOSEPH W. HOWE.

Lumbo-Colotomy; Cancer of Rectum.—A Bohemian woman, aged fifty-eight years, was admitted to hospital February 19, 1879, suffering from cancer of the rectum. She was markedly prostrated. The abdomen was distended and painful on pressure. There had been no evacuation of the bowels for two weeks. An examination of the rectum revealed a stricture three inches above the anus, caused by a carcinomatous mass in a state of ulceration. After some difficulty a No. 12 gum-elastic catheter was passed through the constriction, and warm water and castor oil injected. Several attempts to move the bowels were made, but with no result; and as the patient was rapidly sinking it was decided to perform lumbo-colotomy. The operation was performed by Dr. Howe on the day after admission. Three large evacuations took place through the artificial anus on the day of the operation, and afforded much relief to the patient.

Since the operation there has been steady improvement. She has now regular movements through the artificial anus, and is free from pain and able to sit up.

Chronic Cystitis; Treatment by Perineal Section and Dilatation of the Neck of the Bladder.—A man, aged eighteen years, was admitted December 26, 1878, suffering from cystitis of six months' standing. On the day of admission he passed water every fifteen minutes. Extreme pain was complained of before, during, and after micturition, and had lasted since the onset of the disease. An examination of the urine revealed pus and mucus. Suppositories of opium and belladonna were given, but the relief obtained was only for a few hours; other means were resorted to, but without benefit. The patient became much emaciated, could not sleep, and suffered greatly. It was thought best to open the bladder through the perinæum, and allow the organ to rest. An incision was made in the median line and carried down to the prostatic portion of the urethra. The neck of the bladder was then dilated sufficiently to allow of the introduction of the index and middle fingers. The bladder was washed out through the incision with a solution of carbolic acid (1–40). The day after the operation all pain had ceased, and, although the temperature remained at 104° for three days, the patient made a good recovery from the operation. The cystitis diminished, and he gained flesh and strength. Dr. Howe has reported two similar cases at Charity Hospital, where the same operation was performed with good results.

Injections of Linseed Oil for the Cure of Chronic Cystitis.—A man, aged twenty-nine years, entered hospital December 23d, suffering from cystitis of six months' standing. Micturition occurred every hour both day and night. The urine contained a large amount of mucus and pus. The ordinary remedies were used without benefit, and finally Dr. Howe proposed to distend the bladder and keep it so as long as possible. The agent he used was linseed oil; eight ounces were used at each daily injection. After the treatment had been continued for a week, the cystitis improved. The pus and mucus disappeared. Micturition occurred only six times in twenty-four hours, and was unattended with pain.

Another patient, aged forty-nine years, was admitted with cystitis of three months' standing. Urine contained both pus and mucus. Micturition was painful, and occurred eighteen times a day. The injections of linseed oil were used as in the previous case. After eight days the pain abated, and he was able to hold his urine for two hours; but at that time he left hospital, and has not reported since.

MOUNT SINAI HOSPITAL.

Malarial Fever; Treatment.—A case of malarial fever that has proved obstinate in treatment is under observation at present. The patient had chills and fever several years ago, but was cured in six weeks. The present attack is of the quotidian form, and commenced six weeks before admission. Treatment was begun with quinia in fifteen-grain doses three times a day; after three days the fever was checked for two days.

Salicylate of soda was then given, but after a week no improvement was noticed. Five drops of Fowler's solution was administered every three hours, and in two days the fever ceased. It was necessary to stop the arsenic on account of its constitutional effects, and the chill returned. The tincture of eucalyptus was given in drachm doses, but without benefit. Warburg's tincture was then tried, but after two days the nausea and diarrhœa that ensued prevented its continuance. The appearance of the patient was that of one suffering from phthisis in the third stage. Fowler's solution was again used, and checked the fever in two days, but after five days the disease appeared in the tertian form.

Chloroform was given in drachm doses, with the effect of stopping the chill but not the fever.

Whisky was given, six ounces in twenty-four hours, but without effect.

The patient was in one of the lower wards during the above recorded treatment. He was then transferred to the upper floor. After the change, no chill occurred in thirteen days.

Typhoid Fever; Treatment.—A girl, aged fourteen years, entered the hospital suffering from typhoid fever. The temperature was 104°, and pneumonia was first suspected, subsequently typhoid pneumonia. The temperature steadily rose, and at the end of the third week it was 106¾°. Twenty grains of quinine were given three times a day, but no effect was noticed on the temperature. During the following three weeks the temperature kept at from 104½° to 105½°, and at the end of that time the temperature fell to 99°. With the fall of the temperature, diarrhœa came on, which lasted for a week. When the diarrhœa ceased, the temperature again rose to 104½°, and remained so to the end. Death took place from exhaustion.

During the disease the fever cot was used. Cold affusions were employed for ten minutes at a time. The temperature of the water was 80° at the beginning of the affusion, and was gradually cooled to 60°. Fifteen minutes after the use of the fever cot the temperature fell three fourths of a degree in the rectum, and three and a quarter degrees in the axilla. One hour after the use of the water the temperature rose to what it was before.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Special Meeting, January 30, 1879.

Dr. Fordyce Barker, President.

A New Method of removing Submucous and Interstitial Fibroids of the Uterus.—Dr. T. G. Thomas read an important paper on the removal of uterine fibroids by means of the serrated spoon and forceps. In reviewing the history of the treatment he said that the different methods that had been pursued were excision, torsion, evulsion, enucleation, *écrasement*, and sloughing. He considered that the method proposed was a marked advance, and of special value for the rapidity of its performance, the absence of hæmorrhage, and the ease with which the highest as well as the lowest part of the tumor could be reached. The serrated spoon was a steel scoop having small serrations on its free border. The method of appliance was to cut the capsule, grasp the fibroid by a strong forceps, and push the serrated spoon upward with a swaying motion, the spoon closely hugging the tumor with its concave surface. Before proceeding to describe the cases treated in the above manner, he narrated several treated by some of the old methods.

Case I.—Mrs. C., aged forty years, suffered for four years from fibroid. At time of examination the uterus was as large as if pregnant at eight months. Intra-uterine measurement, five inches. Fibroid adherent to the posterior wall for nearly its whole extent. The external os was freely dilated. Under the suspicion that fluid existed, an aspirator needle was introduced, but without result. The capsule was then incised and peeled up. After two or three weeks the tumor was expelled in a sloughing condition. Dr. Thomas said that such a method of procedure risked the patient's life, whereas by the use of the scoop the operation might have been completed in a few minutes.

Case II.—Mrs. H., aged forty years, was examined during 1873, and it was suspected that she had a uterine fibroid.

The interior of the uterus was not explored, as pregnancy was feared. She was again seen during 1874. The cavity of the uterus measured five inches. Under the influence of ergot the tumor came down. By the *écraseur* and forceps it was removed in an hour. The tumor was as large as a cocoa-nut. The patient eventually recovered. Dr. Thomas thought by the new method the mass could have been readily removed in ten minutes.

Case III.—Mrs. N., aged forty-five years. Physical examination proved the existence of a fibroid. The intra-uterine measurement was five and three-quarter inches. The treatment consisted of ergot and vaginal injections of hot water. The tumor was enucleated by scissors and traction. Patient recovered.

Case IV.—Mrs. A., aged forty years. Fibroid adherent, posterior; os uteri measured three quarters of an inch. Divided the capsule, seized the tumor with the tenaculum, and applied the *écraseur*, but failed to remove the whole mass. It was, however, eventually enucleated. The shock was severe, but the patient recovered. The operation lasted one hour. Dr. Thomas thought that with the new method enucleation might have been performed in eight or ten minutes.

Case V.—Mrs. L. Pediculated fibroid, adherent to the fundus. The presenting portion of the tumor was in a sloughing condition, and had given rise to a diagnosis of cancer. The *écraseur* was applied, but only three fourths of the mass was removed. Death from septicæmia.

Case VI.—Mrs. S. Pediculated fibroid. An attempt was made to remove by means of the wire rope, but only a portion was obtained.

Case VII.—Mrs. N., aged thirty-four years. Sessile fibroid attached to fundus. The *écraseur* failed. The mass was passed from the vulva on the fifth day following the operation. The membranes came away next day. Case recovered.

Dr. Thomas said that the last three cases could have been readily removed by the serrated scoop, and, in passing on to narrate the cases operated on in the new way, he described and presented the instruments. He used for exploring the cavity of the uterus a thin strip of whalebone, about one third of an inch wide, bulbous at the point, which readily accommodated itself to the uterus, and allowed of accurate measurements being taken of the attachment of the fibroid without any possible injury.

Case I.—Mrs. A. Anæmic; liver and spleen enlarged. The uterus contained a fibroid the size of a goose-egg, which was adherent to the anterior wall of the uterus. The intra-uterine measurement was five inches. At the time of examination the condition of the patient was so bad that any operation was deemed injudicious. In a few months she recovered sufficiently to admit of operation. The cervix was cut, and the tumor seized with the forceps. The serrated scoop was applied, and the mass removed in a few minutes. It weighed seven and a half ounces, and measured four inches in one diameter by three in the other.

Case II.—Operated on by Dr. A. C. Post at the Presbyterian Hospital. The patient was thirty-four years of age. The external os was an inch and a half in diameter. Through the dilated os the fibroid could be felt. The capsule was cut and the growth removed by the scoop in forty-five minutes.

Case III.—Sessile fibroid. Uterus measured four inches. The tumor was grasped with the forceps, the cervix cut, and in a few minutes the operation was completed. Recovery took place rapidly, although the patient was operated on during menstruation.

Case IV.—Tumor size of a duck-egg. Patient much exhausted. The operation was finished in six minutes. Death took place from exhaustion.

Case V.—Interstitial fibroid complicating pregnancy. Mrs. S., aged thirty. During delivery the tumor was compressed by a Barnes dilator, till the head of the child relieved the dilator. After the puerperal period had passed, an incision was carried through the uterine wall till the white tissue of the fibroid was reached. It was then secured by the forceps, and detached by the scoop. The nest was tamponed. The condition of the patient was very good after forty-eight hours. The tumor weighed eight ounces. Dr. Thomas said that while detaching the tumor he was much afraid of passing into the peritonæum.

Case VI.—Pediculated tumor. Removed in two minutes.

Dr. Thomas said that the question might be asked, would he remove all tumors by the scoop? In answer, he would unhesitatingly say yes, for the method included traction by the strong forceps. In regard to the removal of large tumors, he would suggest that the perinæum be cut and sewn up after the exit of the fibroid.

Dr. A. C. Post said, in the management of his case, he found that a strong cord introduced into the tumor proved very serviceable in making traction. He used his fingers first in enucleating the lower part, and had recourse to the spoon to separate the upper part. The mass was so large that it was necessary to make radiate incisions, and cut it away as it came down. The uterus was very soft after the operation, but a good recovery took place.

Dr. Emmet had no personal experience of the practice brought forward by Dr. Thomas. He was much pleased with the record, but were it not for the favorable report of the cases he would have greatly feared blood-poisoning from the open surface left after the removal of the tumor. Under any circumstances a certain amount of risk had to be taken in operations.

Eleven years ago he had used an iron serrated shield attached to the point of his index finger, but the weariness of the hand resulting from its use prevented its being practical. It was his practice to wait, if possible, till the fibroid was pressed into the vagina before attempting removal, as there was then a guarantee that there was enough of uterine tissue left to drive down the tumor, and moreover, there was no need to enter the uterus. He had removed several tumors weighing from seven to ten pounds. He considered that the method would be specially applicable in two classes of cases: first, those of small size, and secondly, those of very large size, where the patient had no future, because of the uterus being so much involved, and where the woman was rapidly sinking from the profuse hæmorrhage. He would take great pleasure in using Dr. Thomas's instrument when a favorable case presented itself.

Dr. A. J. C. Skene said that he had practiced the method proposed by Dr. Thomas on one patient who suffered from an interstitial fibroid. The galvano-cautery was used to cut through the investing uterine wall. The serrated scoop was then used, and the fibroid removed. After two weeks the patient was much improved. The case gave the method a severe test. In passing the scoop behind the tumor, Dr. Skene said he came nearer the peritonæum than he should ever wish to again.

Dr. N. Bozeman had not tried the procedure described. He should consider that great advantage would follow its use, particularly in avoiding blood-poisoning.

Dr. H. T. Hanks asked Dr. Thomas if he would remove a fibroid tumor during labor when it obstructed the passage of the head of the child.

Dr. Fordyce Barker thought that the operation in skillful hands might prove very satisfactory, whereas when practiced by those not apt in the use of instruments it might be dangerous. He had found in practice that many fibroid tumors of the uterus disappeared either spontaneously or under treatment. He recalled one case, seen also by Dr. Thomas, where a uterine fibroid as large as pregnancy at full term completely disappeared. The case was under observation for thirteen years. He saw another large tumor twenty-five years ago, and only recently the patient presented herself again. The tumor had disappeared.

Dr. Barker said he only made these remarks to call out Dr. Thomas's views more fully.

Dr. Thomas said, in answer to Dr. Barker's remarks, that in his paper he laid down as a principle, that interference should not be practiced in fibroid tumors unless for some impending danger. When a man removed a fibroid simply because it was a fibroid, he was culpable. The observations of Klob showed that uterine fibroids were very prevalent in the Anglo-Saxon race, and it was a well-known fact that in negro women over thirty tumors were the rule and not the exception. If a woman suffered from a fibroid, and could be carried over the menopause, the tumor would decrease with the change in the uterus.

In regard to the question of Dr. Hanks, he would answer that he would remove a tumor during labor if it obstructed the passage of the child's head.

Some years ago he saw with Dr. Hanks a patient in labor who suffered from a large fibroid. The child was high up, and any method of delivery *per vias naturales* was impracticable. Cæsarean section was advised, and performed, as offering the best chance to both mother and child. The woman died in three days. If such a case came under his observation now, he would not hesitate to remove the tumor.

Stated Meeting, February 6, 1879.

Dr. Fordyce Barker, President.

Galvanism in the Treatment of Sciatica.—Dr. F. P. Gibney read the clinical records of fifteen cases of sciatica treated in the outdoor department of the Hospital for the Ruptured and Crippled. In employing galvanism, he had used a current stronger than electro-therapeutists think advisable, because, he stated, no success had followed the mild current in his hands. Three years ago he began to employ a current as strong as the patient could bear. The battery used was the Leclanché. The number of elements varied between sixteen and thirty, according to the sensibility of the patient and the condition of the battery. As a rule, the positive pole was pressed firmly into the gluteal region near the emergence of the sciatic nerve, the negative over the popliteal space, or where the pain was greatest. Occasionally the positive was placed over the lumbar spine and the negative over the emergence of the nerve. The poles were not moved, so that no interruption of the current took place. The *séances* lasted from ten to fifteen minutes, usually ten. Daily applications were made when possible, and the records showed that cases so treated improved most.

In one case, the actual cautery had twice been applied thoroughly within a fortnight to a man who could not spare time to attend for galvanization. A cure was effected; but at the end of six months a relapse occurred, without assignable cause. Four applications of galvanism were then made, and a cure resulted which lasted for eighteen months.

A remarkable case was recorded of a woman, aged fifty-six, who suffered from sciatica for seven years. She had not walked for nearly six years, but after three or four applications was so improved as to move about without assistance, and after two weeks was entirely relieved of pain. She was induced by a friend to buy a faradic battery and carry out the treatment at home, but found that the sciatica returned after each application. The case illustrated the benefit of the constant over the interrupted current.

Of the fifteen cases, eleven were cured and four much benefited. Of those cured, one relapsed under strong exciting cause, two had not been heard from since the date of discharge. In regard to the time and number of *séances* required, one of three weeks' standing had thirteen applications in twenty-three days; a cure followed which did not relapse after eighteen months. One of six months' standing had eight applications in nine days; cure, but relapse from exciting cause in nine months. One of three months' standing, six applications in thirteen days; cure; no relapse after eleven months. One of three months' standing, five applications in seven days; cure; no relapse after eleven months. One of four months' standing, eight applications in nine days; cure, but not heard from for fourteen months. One of four months', eleven applications in twenty-four days; cure; no relapse after thirteen months. One of four months', sixteen applications in thirty-eight days; cure; not heard from in fifteen months. One of eight months', six applications in fourteen days; cure, and no relapse after eighteen months. One of one year's, twelve applications in twenty-five days; cure; no relapse after twelve months. One of one year's, four applications in five days; great relief, but case not traced. One of three years', twelve applications in eighteen days; cure; no relapse after thirteen months. One of three years', four applications in four days. One of five years', ten applications; cure; no relapse in ten months. One of seven years', fifteen applications in nineteen days; decided relief, but relapse under faradic current. The case was referred to early in the paper.

Dr. E. C. Seguin had not seen many cases. Those that had come under his observation were from three to twenty years' duration. He had used electricity, but had been disappointed. He suggested that the good results obtained by Dr. Gibney may have been due to the counter-irritant effect of the strong constant current. The method that he had practiced was to use the mild current for its sedative effect.

Dr. BEARD had used galvanism to relieve rather than to cure sciatica. It was difficult to say how far to push it, but he favored mild currents, protracted during the night or for a length of time. He favored the insertion of needles into the nerve.

Dr. A. H. SMITH reported six cases. He used the mild current at first, but without effect. He then used the stronger current. Four were relieved. Of the two not relieved, one was due to retroverted uterus, which improved when the uterus was replaced; the other had a stricture and enlarged prostate. He applied the positive pole over the sacrum and the negative along the course of the nerve. The positive pole was a moist sponge, the negative a silver plate. A papular eruption followed the applications.

Dr. SELL had used the faradic current in a case of lumbago of ten years' standing; cure followed ten applications. In applying the battery, he kept the poles over the back as long as the patient could bear it; relief followed each *séance.*

Dr. GIBNEY, in answer to Dr. Seguin, said that he had no theories to offer; he merely reported results. He had tried the mild current and failed, and then used the strong current. In regard to the effect being the result simply of counter-irritation, he would refer to a case in which a temporary cure followed the use of the actual cautery, but after the galvanism was applied there was no return of the sciatica.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, February 12, 1879.

Dr. E. L. KEYES, President.

Encysted Stone; Lateral Operation; Death.—Dr. JOHN A. WYETH presented fragments of a stone removed from a man fifty years of age. Eight years ago he passed two calculi by the urethra. Twelve months afterward he gave symptoms of vesical calculus. He was seen last fall. The stone was detected by depressing the handle of the sound and pressing the point behind the pubes. Bigelow's method of lithotrity was attempted, but after vainly endeavoring for half an hour to seize the stone it was abandoned. The ordinary lateral operation was then performed, and the stone found attached to the anterior wall of the bladder. The patient showed evidence of syncope from the ether, and further procedure was abandoned for the time.

Two days subsequently chloroform was given, the wound enlarged, and the stone removed in fragments. After coming out from the chloroform vomiting occurred, which lasted for ten days, when the patient died. The stone measured two and a half inches by two, and the fragments secured weighed six hundred and twenty-four grains. Dr. Wyeth was assisted in the operation by Dr. Frank H. Hamilton.

Gangrene of Leg following Compound Fracture of Femur; Benefit of Hot-Water Bath.—Dr. Forrest presented an interesting specimen of gangrene of the leg resulting from the use of the plaster-of-Paris splint in a case of compound fracture of the femur. The case was specially interesting from the benefit which followed the use of the hot-water bath.

A child, aged four, on December 3d, fell from the third story of a tenement house, a distance of thirty feet. On examination, a compound fracture of the left femur existed. The child did well for five days, when the medical attendant placed the limb in a plaster-of-Paris dressing. Much pain was complained of, and after two weeks gangrene of the foot developed. There was no union of the fractured femur. Dr. Forrest saw it on December 15th, and at that time there were no evidences of a line of demarkation. The limb was placed in a tin trough, and water of 112° Fahr. poured over it continually; virtually it was in a bath of water of that temperature. The immediate effect of the hot water was to relieve the pain. On the second day a line of demarkation appeared between the middle and upper third of the leg. The hot water was used for ten days. In three weeks the child was able to sit up. The fracture of the thigh was united. A circular amputation was made at the upper third of the leg. The important feature of the case was the benefit which resulted in a seemingly hopeless case of gangrene from the use of hot water. When it was applied, the chances of the child living through an operation were exceedingly small, and after its use an immediate change for the better ensued.

Pleuro-Pneumonia in Cattle.—Dr. A. LIAUTARD presented the lungs of a calf dying with pleuro-pneumonia. The disease he said was of two varieties, sporadic and epidemic. The epidemic form was a blood disease and contagious. The lungs showed that the form of pneumonia was the interstitial. The pleura was much thickened and adherent to the lungs. The other organs were healthy. The disease ran its course usually in nine or ten days, but might become chronic. The period of incubation was two or three months. The treatment was stimulative. Inoculation had been performed in Germany; it was done by taking some of the serosity from a diseased lung and placing it beneath the skin of the tail. Sporadic cases were not contagious: did not pass into the epidemic form. The disease first appeared in this country in 1843.

Dr. W. M. CARPENTER made a *post-mortem* examination on a calf dying from pleurisy. There was no evidence of sickness on the evening preceding death. The pleura was half an inch in thickness, and there was a moderate amount of pneumonia.

Pachymeningitis; Hæmorrhagica Interna.—Dr. E. G. JANEWAY presented a specimen of brain from a man aged fifty, who entered Bellevue Hospital November 9, 1878. He had rheumatic gout for three years. On entering hospital there was pneumonia of the right lobe with cardiac hypertrophy. The urine after thirty examinations furnished no casts, and only at rare times a trace of albumen. A convulsion occurred on November 29th. The general health improved. The memory was affected, and the appearance of the patient would indicate chronic meningitis. A diagnosis of gouty kidney was made regardless of casts, inasmuch as he passed seventy ounces of urine of a specific gravity 1010. He was discharged January 10th, but returned January 27th and died.

Autopsy.—Kidneys small, contracted. Brain: chronic pachymeningitis; hæmorrhagica interna. The pigmentation was distinct. The joint of the great toe was gouty. The knee-joint gave evidences of chronic arthritis deformans. Dr. Janeway said the diagnosis of gouty or small contracted kidney was made upon the general history. He had seen two cases that looked like progressive pernicious anæmia that proved to be Bright's with the small contracted kidney.

Myxo-sarcoma of Cheek and Orbit.—Dr. C. S. Bull presented a specimen of myxo-sarcoma, which was of interest from its rapid growth and its rarity. A boy received an injury to the cheek near the eyelid on December 22, 1878. A swelling soon appeared at the site of injury, and was lanced under the supposition that it was an abscess. It continued to increase. The eye protruded and became fixed. An ophthalmoscopic examination showed that there were no intra-ocular lesions. Enucleation was performed January 13, 1879, when it was found that the tumor was attached to the optic nerve. Dr. Janeway had seen a patient at the Hospital for the Ruptured and Crippled who suffered from myxo-sarcomatous tumors in different parts of the body. He improved under the use of five-drop doses of Fowler's solution and static electricity. The treatment was continued for three months.

Lithotrity; Bigelow's Method.—Dr. E. L. Keyes presented specimens of stone removed from four patients by Bigelow's method. All of the patients were over fifty and did well after the operation. He had found that during operations with the instrument air worked into the bulb through defective joints. It could be easily remedied by inverting the instrument. He suggested the use of it in making a diagnosis of stone by aspirating. The current of water coming out of the bladder would carry the calculus against the tube, and the clink could be readily heard.

Stated Meeting, February 26, 1879.

Dr. E. L. Keyes, President.

Plastic Surgery of Face.—Dr. A. C. Post exhibited two photographs showing the improved condition of a girl upon whom he had operated. The patient suffered from an extensive cicatrix of the face, the result of a burn. There was ectropion of both eyes, with loss of the eyebrows. A flap was dissected up on either temporal and parietal region and brought down so as to relieve the ectropion. Flaps were also dissected from the surface of the masseter muscle and carried up so as to be parallel to the first. A series of minor operations were made which lasted over two years. The effect of the superior flaps was to furnish eyebrows from the hairy scalp. The surface of the forehead above the eyebrows was made smooth by epilation. Dr. Post said that when he performed the operation he was not aware that the reparation of the eyebrows had been before attempted. He had discovered subsequently, however, that Dr. Pancoast, of Philadelphia, had performed and published the operation. The photographs showed that the operation was a marked success. The appearance of the photograph after the operation showed a face completely restored or nearly so, whereas the first one was characterized by marked deformity. The case was reported at the American Medical Association, and will be published in the forthcoming transactions.

Sarcoma of Jaw.—Dr. Post also presented a specimen of sarcoma which he had removed from a patient at the Presbyterian Hospital. The interest of the case rested on the development in six weeks of a tumor as large as the hand which involved the left upper jaw. The patient was thirty-five years of age. Six weeks before the operation several carious teeth were removed on the affected side, and since then the growth was progressive. It involved the antrum and portions of the nasal process of the superior maxilla, and extended into the ethmoidal cells. The skin of the cheek was not involved. The operation consisted in making an incision from the outer canthus to the nose and downward to the ala nasi. At Dr. Briddon's suggestion, the nasal cavity was not opened till a later stage of the operation, to avoid blood passing into the pharynx. The mass was then pried out, and that portion of it in the ethmoidal cells that could not be reached was treated with a solution of chloride of zinc.

Aneurism of Aorta.—Dr. L. Peabody presented a specimen of aortic aneurism which had ruptured into the left bronchus. No diagnosis was made during life. The patient was a seaman thirty-eight years of age. He was admitted to hospital three months before his death, suffering from bronchitis. During his stay in hospital there was dyspnœa, cough, and occasionally bloody sputa. Death took place from bronchial hæmorrhage. The autopsy showed an aneurism of the aorta with a linear opening into the left bronchus one third of an inch in length.

Pyæmia.—Dr. Peabody presented a second specimen obtained from a woman aged twenty-six years, who died from pyæmia.

The disease commenced with a chill, followed by fever and sweating, and continued for two weeks. During that time the rigors occurred four or five times a day.

She entered the New York Hospital thirty hours before death. Pain was then complained of in the right arm and side of the neck. Temperature, 106°. Skin red over the ankles. Before death the temperature rose to 107°. At the autopsy pus was found in the right wrist, elbow and shoulder joints. The femoral vein contained a thrombus which extended to the right knee. The interesting point in the case was the occurrence of pyæmia in a patient who had no wound or injury.

Aneurism of the Renal Artery.—Dr. L. A. Stimson presented a specimen of aneurism of the renal artery removed from a man aged sixty-five years. The aneurism was half an inch long, contained no clot, and was situated above the bifurcation of the renal artery.

Excstosis of Parietal Bone.—Dr. Stimson also presented a specimen of exostosis of the parietal bone. It contained no diploe, and was of the appearance of ivory. There was nothing to indicate its point of origin.

Sarcoma.—Dr. Stimson presented a specimen from a man forty-three years of age, suffering from general sarcoma. Last March he had a tumor, supposed to be cancer, removed from the right breast. A short time subsequently there was paralysis of both lower extremities. One month before death there was spontaneous fracture of the femur. The autopsy proved that the predisposing cause of the fracture was a sarcomatous mass situated in the shaft of the femur, which caused the absorption of one half of the bone. The ribs were similarly affected. Nodes were also found in the brain, skull, and kidneys. The three lower lumbar vertebræ were involved, but the inter-vertebral disks were unchanged. The right ilium was so soft that a knife would readily penetrate it. Dr. Stimson said the disease was general encephaloid sarcoma.

Intra-Capsular Fracture.—Dr. Stimson also presented a specimen of intra-capsular fracture of the femur. Immediately after the injury there was no shortening and no deformity. Eversion with shortening of one quarter inch was noticed in four days, and in seven weeks there was two inches of shortening. The knee was adducted across the body. Considerable discussion took place in regard to the question, Can there be two inches of shortening without rupture of the capsule? Dr. Stimson said he did not make the autopsy, but took the word of the house-surgeon that the capsule was intact. Dr. Howe maintained that it was a physical impossibility for shortening of two inches to take place in seven weeks without rupture of the capsule, and would feel disposed to question the report unless observed by Dr. Stimson himself.

Sarcoma of Conjunctiva; Amyloid Degeneration.—Dr. C. S. Bull presented a specimen of sarcoma of the conjunctiva which he had removed from a girl seventeen years of age. The appearance led to a suspicion of epithelioma. The mass was enucleated without difficulty and the edges of the wound brought together. As a result of the operation there was slight inversion of the lids. A microscopical examination showed the tumor to be a sarcoma which had undergone amyloid degeneration. Dr. Bull said that he was not aware of a similar case on record.

Stated Meeting, March 12, 1879.

Dr. E. L. Keyes, President.

Ovarian Cyst with Twisted Pedicle.—Dr. Bozeman presented an ovarian cyst removed from a patient twenty-three years of age. The point of interest was that the pedicle was found twisted upon itself, and looped around the round ligament. With increased size of the tumor there had been severe pains. The patient recovered.

Malposition of Uterus a Result of Ovariotomy.—Dr. Peabody presented a specimen, consisting of the uterus, left ovary, and bladder, which was removed from a woman aged fifty. She had an ovariotomy performed on her six years ago, at St. Thomas's Hospital, London. The patient had been under the care of Dr. Partridge, and it was supposed there was cancer of the uterus. A sloughing mass was found in the vagina, but an examination, made *post mortem*, proved that it was made up of connective tissue. The left ligament of the uterus was attached to the cicatrix in the abdomen, the result of ovariotomy. The effect of the contraction of the ligament was such as to draw the uterus upward, and elongate it so that the intra-uterine measurement was six inches. Dr. Peabody said that the state of the uterus was of interest when considered in relation to a method proposed by Kœberle in one case for restoring a displaced uterus. The case was one of retroversion, causing obstinate constipation. All ordinary procedures were useless. Finally it was decided to open the abdomen, and attach the uterine ligament to the incision. The operation was performed. In a short time the contraction of the ligament lifted the uterus up, and for four years the symptoms were relieved. Subsequently colic and vaginismus occurred.

Tubercular Disease of the Prostate.—Dr. W. T. Bull presented, on behalf of a candidate, the bladder of a patient who had suffered from tubercular disease of the testicle, prostate, and lungs. Five months before death he contracted gonorrhœa, which was followed by orchitis. One month subsequently there was pain in the perinæum, with tenesmus, and pus in the urine. Two months from the beginning of the gonorrhœa pus escaped from the anus. An incision was made through the perinæum into an abscess in the prostate. Examination of the lungs proved that the patient was suffering from phthisis. Death took place from exhaustion.

Autopsy.—The bladder was found congested. There was no prostatic urethra. In the center of the prostate there was an abscess the size of a horse-chestnut, which communicated with the rectum.

Calcareous Degeneration of Lipoma.—Dr. Bull also presented a specimen of lipoma which was removed from a woman aged fifty. The tumor was pear-shaped, and was attached by its pedicle to the axilla. On section it was found to consist of adipose tissue. In the center was a nodule of calcareous matter.

Chyluria.—Dr. T. E. Satterthwaite presented for a candidate several specimens of chylous urine. They were obtained from a man aged thirty-two, who for two years had passed milky urine. Dr. Abbe asked if the patient suffered from filaria. In 1874 he had seen a case of chyluria in which filaria were found in the blood, a single drop containing five or six of the embryonic form. The urine coagulated in twenty minutes, and had the appearance of blanc-mange. The disease was treated successfully by twenty drops of turpentine three times a day.

Double-tubal Dropsy.—Dr. Abbe presented a specimen of double-tubal dropsy. The right fallopian tube was larger than a coil of small intestines. There were evidences of old pelvic cellulitis. The fallopian tubes were imperforate.

Gangrene of Leg.—Dr. A. C. Post presented a gangrenous leg which he had amputated at the Presbyterian Hospital. The patient was fifty years of age, and entered the medical side of the hospital suffering from swelling of the leg. Gangrene occurred, and he was transferred to the surgical side. Amputation at the lower third of the thigh was performed March 12th.

Fibrinous Casts from a Calf.—Dr. A. E. M. Purdy presented fibrinous casts which had been vomited by a calf. They had been examined by Dr. John C. Dalton, but there was nothing observed which would indicate their origin.

Strangulated Hernia.—Dr. L. A. Stimson exhibited a specimen of strangulated hernia which was obtained from a woman aged forty-three. The disease began with vomiting on Saturday; on the following Tuesday a tumor was found in the groin. Death occurred four days from the attack. The autopsy presented a knuckle of gangrenous intestine in the ring. There was also sloughing of the peritonæum and parietes of the ring.

Multiple Abscess of the Bladder.—Dr. STIMSON also presented a specimen of multiple abscess of the bladder, with the following history: A man aged twenty-five, after a debauch, had retention of the urine for forty-eight hours. He then entered hospital, and died in three weeks from exhaustion. During life there was incontinence from overflow.

Autopsy.—Several abscesses were found in the wall of the bladder. On the right side there was a double ureter with double opening. There was also pyelitis.

THERAPEUTICAL SOCIETY OF NEW YORK.

The sixth Stated Meeting was held February 14, 1879, the President, Dr. LEAMING, in the chair.

The Committee on Restoratives, through its Chairman, Dr. ANDREW H. SMITH, presented the following report:

REPORT ON DEFIBRINATED BLOOD FOR RECTAL ALIMENTATION.

MR. PRESIDENT AND GENTLEMEN: At a meeting of this Society held in April of last year, a very brief preliminary report was presented by the Committee on Restoratives on the subject of the use of defibrinated blood for rectal alimentation. This report, brief as it was, served the purpose for which it was intended, viz., to call the attention of the Society to the subject, and to enlist the coöperation of the members in giving the plan of treatment a fair trial. As the result, we have now upward of 60 cases upon which to base a report, which, if not final, will at least go far toward establishing the claim of this to rank with other received methods of treatment in cases of imperfect nutrition.

It will be noted that only two or three of the cases which will be presented are such as have heretofore been supposed to furnish the indications for rectal alimentation, the rectum being used in the remainder as only subsidiary to the stomach.

The report covers 63 cases. Of these, 38 cases were of pulmonary phthisis in every stage, some of them presenting large cavities, and several being within a few days of the fatal termination. Eight of these could not tolerate the injections, either because of irritability of the rectum or on account of severe and persistent abdominal colic even when the dose was reduced to two ounces and tr. opii added. This leaves 30 cases in which the treatment had a more or less thorough trial. Of these, 10 showed no effect which could fairly be attributed to the injections. Some were improving before the treatment was begun, and continued improving at about the same rate during its continuance. Others were losing ground, and their downward tendency seemed not to be checked in any appreciable degree. These cases have therefore been regarded as not affected either way by the treatment.

We have, therefore, 20 cases left in which positive benefit seems to have attended the use of the blood. This benefit was expressed sometimes by a decided gain in weight, in other cases by improved appetite and increased vigor, in others by cessation of night-sweats or by diminished cough. The difficulty in estimating accurately the effect of any treatment in phthisis must be borne in mind, as the condition of the patient under any plan is liable to considerable fluctuations. In these observations, however, the point principally kept in view was the effect upon nutrition, it being taken for granted that anything which improves nutrition exerts a favorable influence upon the progress of the case.

It must not be forgotten that the hospital patients were all of them receiving already the usual house treatment, consisting of cod-liver oil and, in advanced cases, whisky or brandy, with expectorants and anodynes as indicated, and atropine, sulphuric acid, oxide of zinc, etc., for night-sweats when present, together with quinine if the temperature was high. The enemata of blood were simply added to this treatment, so that it may fairly be claimed that the benefit which followed was over and above what might have been expected from the usual methods.

Cases I. to VIII. include those already mentioned in which the enemata were not retained.

Case IX. Reported by Dr. George Bayles.—Girl, twelve years old. Phthisis. Quantity given not stated. Much improved. In six weeks gained four pounds in weight. Night-sweats ceased, cough abated, appetite improved.

Case X. Dr. Bayles.—Man, forty-five years of age. Phthisis. Blood used for twenty days, when the treatment was given up on acount of diarrhœa.

Case XI. Dr. Bayles.—Woman. Phthisis, third stage. Blood used alternately with milk, eggs, etc., by rectum. Patient sustained for a while, but finally sank and died.

Case XII. Reported by Dr. O. B. Douglas.—Young lady. Phthisis, second stage. Coughed badly; no appetite; greatly emaciated; frequent vomiting; slept but poorly, and had exhausting night-sweats. Ordered three ounces blood by enema twice daily. Coughed less and slept better the night following. Injections increased gradually to five ounces three times a day. In twenty-four days weight increased about five pounds, and there was marked improvement in every respect. The dejections seldom showed traces of blood.

CASE XIII. Reported by Dr. A. E. M. Purdy.—Young gentleman from Chicago. Phthisis, second stage, with diarrhœa, supposed to be tubercular, and which had resisted treatment in Chicago, and had become so much worse here that he was obliged to defer a contemplated journey to Texas, which had been recommended. After exhausting the usual methods of treatment for the diarrhœa, Dr. Purdy ordered injections of an ounce and a half of blood twice a day, increased the next day to four ounces three times a day. The third day the diarrhœa had ceased and was replaced by constipation, and in eight days the patient had so far improved that he started on his journey South.

CASE XIV. Reported by Dr. H. T. Hanks.—Man, forty years of age. Phthisis in last stage. Injections of fluid blood were ordered, and he took them faithfully, being convinced that they were beneficial and did him excellent service. He continued them for four weeks, when in the extremely hot weather in July he died.

Cases XV. to XXXVIII. inclusive are reported by Dr. Andrew H. Smith, and occurred in patients at St. Luke's Hospital.

CASE XV.—Wm. N. Phthisis, third stage. Took four ounces of blood by enema once a day for thirty days. Negative result. Patient was failing when the treatment was begun, and continued to sink.

CASE XVI.—Jacob Graf. Entered hospital November 12th, died January 27th. Pleuritic effusion into right pleura, with compression and carnification of lung. Extensive tubercular disease of upper lobe of left lung, with cavities.

November 27th.—Began injections; four ounces once daily. Weight, 141 pounds.

December 13th.—Weight, 144 pounds.

January 4th.—Weight, 146 pounds.

Autopsy made by Dr. Satterthwaite, who found that death was caused by sudden congestion of the only useful portion of lung remaining, viz., left lower lobe. An interesting fact in relation to the behavior of fluids injected into the rectum was revealed at the autopsy. The patient had taken his injection as usual between 8 and 9 o'clock in the evening, and death took place at about 5 o'clock the next morning. The amount of the injection (four ounces) was not sufficient to half fill the rectum alone, yet the large intestine from the anus to near the hepatic flexure was found evenly lined with thickened blood. It is true the patient was in the horizontal position, still we should not have expected to find the injection extending much above the point at which it was left by the syringe.

CASE XVII.—Garretson. Phthisis, second stage. On December 15th began use of blood, and in two weeks gained three pounds.

CASE XVIII.—Edward Retigan. Phthisis, third stage; excessive night-sweats, for which no medicine had been given. Ordered five ounces of blood by enema daily at bedtime. The sweating was greatly diminished the first night, and within a week it had nearly ceased, and there was a decided gain in strength. Gained a pound and a half in fourteen days.

Case XIX.—Daniel R. Similar in every respect to Case XVIII., except that no cavities were present. The sweating was less during the night following the first injection, and practically ceased in the course of five or six days.

Case XX.—Edward O'C. Phthisis, second stage. Took seven ounces once a day for ninety days. Effect uncertain, as patient was improving when the treatment was begun. Gained flesh very rapidly at first; then, on the recurrence of hæmorrhage, fell back. After the hæmorrhage, increased the injections to ten ounces. Gained flesh again very rapidly, and left hospital at the end of two weeks much improved.

Case XXI.—Andrew G. Phthisis in third stage. Had been in hospital seven weeks, and was steadily losing ground. Four ounces twice a day relieved a long-standing constipation and improved the appetite astonishingly. In two weeks there was a gain in weight of six pounds, and in the three weeks following a gain of three pounds.

Case XXII.—John McN. Phthisis, second stage. Took four ounces once a day for twenty-three days. Some colic was produced. Gained six pounds, but was improving before. Lost three pounds in four weeks after the treatment was stopped.

Case XXIII.—Hansen. Phthisis, third stage. Took four ounces once a day for ninety days. Felt stronger, but continued slowly to lose weight. Stopped treatment for three days; grew rapidly weaker. Improved again when the treatment was resumed.

Case XXIV.—Clarence M. Phthisis, second stage. Four ounces once a day for seventy-five days. Produced constipation; general effect negative.

Case XXV.—Peter R. Fibrous phthisis, second stage. Five ounces once a day for thirty-three days. Constipation. Improved somewhat, although the breathing was very much restricted and the conditions very unfavorable.

Case XXVI.—William A. Phthisis, third stage. Five ounces once a day for twenty-five days. Result negative.

Case XXVII.—Garretson. Phthisis, second stage. Five ounces once a day for twenty days. Gained three pounds in two weeks. Strength improved.

Case XXVIII.—Thomas G. Phthisis, third stage. Four ounces once a day for forty days. Result negative. Was failing, and has continued to lose ground.

Case XXIX.—Charles B. Fibrous phthisis, third stage. Four ounces once a day for fifty days. Result negative. Gradually lost the power of retaining even a small enema. Continued to fail.

Case XXX.—John D. Phthisis, third stage. Three ounces once a day. At the end of twenty-two days, blood not retained. After omitting it for a short time, during which patient failed rapidly, it was resumed and well retained, and he improved decidedly.

CASE XXXI.—Ellen C. Phthisis, third stage. Three ounces once a day for thirty-five days. Gained strength; night-sweats checked; coughed less.

CASE XXXII.—Stanislaus, female. Phthisis, thirdstage. Three ounces once a day for twenty days. Result negative. Continued to fail, and died.

CASE XXXIII.—Anne H. Similar to last, and with like result.

CASE XXXIV.—Elizabeth W. Phthisis, second stage. Four ounces once a day for thirty-eight days. From a condition of rapid decline, characterized by high fever, complete loss of appetite, emaciation, night-sweats, racking cough, and complete prostration of strength, she regained flesh, color, and strength; her appetite improved, and her cough was lessened. Night-sweats ceased, and she left the hospital very much better—in fact, looking like another woman.

CASE XXXV.—Joanna J. Phthisis, third stage, with phthisical laryngitis. Three ounces twice a day for twenty-one days. Caused extreme constipation. Strength sustained, although very little food was taken on account of dysphagia. Failed rapidly after treatment was discontinued.

CASE XXXVI.—Bridgman. Phthisis, second stage. Four ounces once a day for fifteen days. Produced some diarrhœa. Patient held his own while using the blood, but lost weight and strength after its use was given up.

CASE XXXVII.—Mrs. G., private patient of Dr. Smith. Phthisis, first stage. Five ounces twice a day for forty days. Gained strength and appetite, and coughed much less. Eight months after was still improving.

CASE XXXVIII.—Anna T., hospital patient of Dr. Smith. Phthisis, third stage. Three ounces twice a day for ten days. Revived from an almost moribund condition, and lived ten days.

CASE XXXIX. Anæmia, reported by Dr. Bayles.—Female, aged twenty-two; teacher. Well-marked case of dyspeptic anæmia, of two years' duration. Nourished entirely by the rectum for three weeks, a portion of the time with defibrinated blood, of which she took five ounces three times a day. At the end of three weeks medicine was dispensed with, and food given by the mouth. In two months dismissed cured.

CASE XL. Anæmia.—Martha T., aged nineteen, hospital patient of Dr. Smith. Extreme anæmia of many years' standing. Says that from her earliest recollection she has been remarkable for her extreme pallor. Has received a great deal of treatment, and has been in hospital for long periods. Probably has congenital arterial hypoplasia. Took four ounces twice a day for sixty-five days. Not much benefited. Troublesome constipation produced. Did not improve under iron and small doses of bichloride of mercury.

CASE XLI.—Mary S. Pronounced anæmia, following intermittent fever. Confined to bed. Took five ounces twice a day, with no other treatment. Discharged cured in thirty-four days.

Case XLII.—Sarah D. Anæmia of typical character. Great pallor. Took five ounces twice a day for forty days. No other treatment. Some constipation produced. Recovered.

Case XLIII.—John K. Extreme anæmia, following long-continued and severe intermittent fever. Anæmic bruit and venous hum present with unusual distinctness. Took five ounces twice a day for twenty days, and recovered with no other treatment. Murmurs disappeared in ten days.

Case XLIV.—James H. Anæmia, well marked. Has been taking four ounces once a day for thirty days, and is steadily improving. Some constipation at first.

Case XLV.—Mrs. C. Anæmia. Four ounces once a day. Improved rapidly in color and strength.

Case XLVI.—Miss P., private patient. Anæmia. Bruit present. Five ounces twice a day. Bowels, formerly constipated, became regular. Bruit disappeared at the end of a month.

Case XLVII.—Rev. Dr. S., private patient. Extreme anæmia consequent upon the general disturbance of health resulting from contraction of the right chest from a pleurisy two years before. The lung was compressed by effusion and bound down by organized lymph, which prevented reëxpansion when the fluid was absorbed. Right cavity of chest nearly obliterated. Breathing very much embarrassed, respirations numbering from 60 to 70 per minute. Face pale; lips bloodless; legs swollen. Constant dry cough, complete loss of appetite, and greatly disturbed sleep. No medicine was given, but a teacupful of blood was directed to be taken every night by the rectum. In two weeks the swelling of the legs disappeared, the breathing became less hurried, and the appetite and sleep improved. After about six weeks, during which patient gained greatly in strength, the treatment was discontinued; but all the former symptoms began to make their appearance again, and after five days he was glad to return to the enemata. The first night after resuming them there was refreshing sleep, and the following morning a regular meal was taken and retained for the first time in three days. Patient is still improving.

In this case nine ounces were taken each night for some time through misunderstanding. During this time the dejections were extremely fetid. The quantity was afterward divided, and half of it given in the morning. After this there was no further annoyance.

Case XLVIII. Dyspepsia, reported by Dr. Douglas.—Mrs. M. E., thirty-six years old, a native of Ireland and a chronic dyspeptic, was taken January 2d with vomiting, which grew severe and continued sixty-five hours. She was then delivered of a still-born seven-months' child. In extreme exhaustion, her stomach rejecting even a teaspoonful of milk and lime-water. I ordered two-ounce enemata of beef's blood warmed to 100°, which gave such relief that she slept for an hour. Complaining of severe gastralgia next day, I had ten grains chloral hydrat. added to each injection, given four times daily, while the pain lasted, the quantity of blood being increased gradually to four ounces. These injections continue to the present time (January 13th), though vomiting ceased on the 8th, and she takes with a relish small draughts of milk, soup, etc.

Case XLIX. Dyspepsia, reported by Dr. Smith.—John G., patient at St. Luke's Hospital, had for some months vomited all solid food. Epigastric pain and tenderness. No blood vomited. Very much emaciated. Confined to bed. Took six, and subsequently seven, ounces twice a day, very little food being taken by the mouth. Gained six pounds in six weeks, and the irritability of the stomach was greatly lessened. Left his bed, and was finally detailed to bring the daily supply of blood from the slaughter-house to the hospital. Before resorting to the use of the enemata, milk diet, electricity, blisters, and a great variety of drugs were tried, with but slight and temporary benefit.

Case L. Dyspepsia, transcribed from the records of St. Luke's Hospital.—Patient, William T., four years and a half old, was admitted October 21, 1878. For five or six months had been running down without assignable cause. Examination shows extreme emaciation, anæmia, enlarged liver, veins of abdomen injected, and stomach distended. Ordered syr. ferri iodid., gtt. iij, t. i. d. Ex. malt, ℥ j, t. i. d.

November 1st.—Improving in general appearance.

January 1st.—For some days patient has been vomiting nearly everything taken into stomach. Ordered milk diet.

23d.—Not materially improving, though vomits less frequently. Patient weighs twenty-three pounds without clothes. Ordered enemata of defibrinated beef-blood, ℥ ij, b. i. d.

31st.—Weighs twenty-four pounds and a half. Looking much better; running about the ward.

February 8th.—Weighs twenty-five pounds and a half. Lips red; cheeks filled out and rosy; abdomen less distended; and in every way patient looks a healthy child.

Case LI. Dyspepsia.—James K., private patient of Dr. Smith. Case had continued for about eight months, the patient vomiting after nearly every meal, if even the smallest amount of solid food was taken. He became very much emaciated, and was supposed by his friends to have consumption. The only treatment ordered was an injection twice a day of a teacupful of blood and the application of a belladonna plaster over the stomach. The vomiting ceased in the course of three or four days, and at the end of seventeen days it was found that he had gained eleven pounds and a half.

Case LII. Dyspepsia, reported by Dr. Bayles.—Patient aged sixty-two. So intolerant was the stomach of food that gastric ulcer or morbid growth about the pylorus was suspected. For two months nothing was taken by the mouth except a little weak claret and water, toast-water, or tea with milk, the nutrition being kept up by enemata of beef's blood. At the end of this time he had gained in weight, and was so far recovered that he could resume his accustomed place at the table.

Case LIII. Dyspeptic asthma.—Mr. R., private patient of Dr. Smith. Of very spare habit and feeble frame, yet a man of great energy and devoted to his business. Had been for years subject to frequent and severe attacks of dyspeptic asthma, which produced great prostration. The most varied treatment, prescribed by different physicians, gave but little relief. In the early part of last summer he began the use of enemata of blood, increasing the quantity until he took from six to eight ounces twice a day. He continued this during the hot weather, remaining in town and devoting himself actively to business. He gained six to eight pounds, and had complete immunity from asthma during the whole time. The injections, however, produced annoying constipation, and he finally gave up their use. Since then he has rather lost ground, and he is suffering somewhat again from his old attacks.

Case LIV. Diarrhœa in a phthisical patient, reported by Dr. Bayles.—The attempt was made to use rectal alimentation, different articles being employed for the purpose. None of them answered well, and blood acted the least favorably of all, the diarrhœa being specially aggravated by it.

Case LV. Nervous exhaustion.—Miss S., private patient of Dr. Smith. Constitution broken six years ago by prolonged ulceration of rectum and fistula in ano. Frequent attacks of dysentery since. Last winter sick for three months with a low nervous fever, which left her in a state of extreme debility. Pain and tenderness in epigastrium, no appetite, insomnia, giddiness, palpitation, tinnitus, spectral illusions. Five ounces twice daily produced an immediate improvement. Epigastric pain and tenderness disappeared within a few days, and sleep and appetite returned. The giddiness and palpitation soon disappeared, but the tinnitus and the spectral illusions continued for several weeks. In a month from the beginning of the treatment she had recovered so much strength that she could row for a short time each day. No medicine taken. She returned to town in October much improved in flesh, and better than she had been for years. She was then subjected to a great drain upon her strength in opening a new house, and in the midst of it had one of her attacks of dysentery. This was promptly checked, but it left her with many of her former symptoms. She resorted again to the enemata with immediate and marked benefit; and in three or four weeks, although surrounded by very unfavorable influences, she regained what she had lost.

Case LVI. Exhaustion from pleurisy and sub-acute pneumonia.—Mrs. B., private patient of Dr. Smith, aged sixty-eight. Strength very much reduced; no appetite. Four ounces twice a day caused rapid improvement in both particulars. When the treatment was omitted even for a single day, she felt that her strength was less. In this case the injections caused a tendency to looseness of the bowels.

Case LVII. Exhaustion from pelvic cellulitis.—Maria F., patient at St. Luke's. Hectic; night-sweats; diarrhœa. Took three ounces twice a day. At first checked diarrhœa, subsequently produced colic and loose passages. General result negative.

CASES LVIII. and LIX. Neuralgia, reported by Dr. Bayles.—Mother and daughter both suffered from paroxysms of neuralgia lasting about ten days, and recurring on an average as often as once a month. Disease hereditary. Twenty ounces were given daily in divided portions for ten days, and then after an intermission for a second ten days, nothing but a little milk with lime-water being taken into the stomach. In the six weeks which included these two periods of ten days the mother gained six pounds and the daughter two pounds. The attacks of neuralgia were greatly mitigated in severity and duration.

CASE LX. Reported by Dr. Smith.—Miss S. Ovarian neuralgia, without anæmia. Four ounces were given twice a day, but it produced great nervous excitement and insomnia. It was omitted for a few days, and when resumed the same symptoms recurred, and its use was abandoned.

CASE LXI. Gastric ulcer.—Pauline S., aged eighteen, patient at St. Luke's Hospital. Vomited everything taken. For two weeks had been nourished entirely by enemata of blood and brandy, but was failing, and when first seen was semi-conscious and apparently moribund. Found that the blood and brandy were given mixed (three ounces blood and one ounce brandy every three hours), thus probably coagulating the albumen of the blood and preventing absorption. Ordered the blood to be given separately, and an occasional teaspoonful of brandy and milk to be given by the mouth. Next day patient fully conscious; pulse, which had been barely perceptible, had become fairly strong, the glazed corneæ bright, and the dry tongue moist. There had been no vomiting. From this time recovery progressed rapidly. Milk and brandy in very small quantities were given by the mouth, and gradually other articles were added, until in two weeks the patient was upon full diet, when the rectal alimentation, which had been proportionately diminished, was entirely withdrawn. In five weeks she was discharged cured.

CASE LXII. Hæmorrhage from ulcer of the stomach.—Bishop G., patient of Dr. A. S. Purdy. There was very profuse vomiting of blood at short intervals up to the moment of death, the case terminating in about thirty hours. Enemata of blood were employed, and may have prolonged life somewhat, but no means of support could avail in the presence of such profuse and persistent hæmorrhage.

CASE LXIII. Exhaustion from uterine hæmorrhage, reported by Dr. Hanks.—On July 29, 1878, I was called to see Mrs. B., aged thirty-three years, a native of the United States, on account of a profuse and long-continued menstrual flow. I found her extremely weak and apparently nearly exsanguinated, with a feeble pulse of 110; temperature, 99°; respiration, 24; a constant flow of thin red blood from vagina. This had continued for one week. Her last menstrual flow was also of long duration.

The uterus was found retroverted in the second degree. The displacement was corrected, and warm salt-water injections *per vaginam* were ordered. On the following day the flow still continued, and the patient was hardly able to raise her head from the pillow without fainting.

Pulse still rapid and feeble; temperature normal. A liberal allowance of brandy was ordered, and aromatic sulphuric acid and morphine in small doses.

August 1st.—Same condition; pulse, 120; temperature, 101°; vomits all food taken. Ordered four to six ounces of beef's blood *per rectum* three times per day.

August 2d.—Pulse and temperature the same. Patient looks and feels better. Injections have caused no pain or uneasiness. Same treatment to be continued.

August 5th.—Patient improving. Same treatment.

August 13th.—Has continued the injections of blood until to-day. Has taken some food *via naturali* during the week. Has improved steadily during the use of the injections.

SUMMARY.—The report covers 63 cases.

Thirty-eight were of phthisis. Of these, in 8 the treatment was not well borne; 10 were not noticeably benefited; 20 received benefit, some of them slight, others very decided.

One case of diarrhœa in phthisical patient made worse.

Nine cases were of anæmia. Of these, 1 was not benefited; 8 were greatly improved or cured.

Five cases were of dyspepsia. All benefited, some of them remarkably. Several apparently cured.

One case of dyspeptic asthma entirely relieved while the treatment was continued.

Four cases of exhaustion from various causes, all benefited.

Three cases of neuralgia: 1 not benefited, 2 decidedly improved.

Two cases of gastric ulcer: 1 not benefited, death taking place from hæmorrhage; 1 rescued when apparently moribund.

From the facts before them, the Committee feel warranted in the following conclusions:

1. That defibrinated blood is admirably adapted for use for rectal alimentation.

2. That in doses of two to six ounces it is usually retained without any inconvenience, and is frequently so completely absorbed that very little trace of it can be discovered in the dejections.

3. That, administered in this way once or twice a day, it produces in about one third of the cases for the first few days more or less constipation of the bowels.

4. That in a small proportion of cases the constipation persists, and even becomes more decided the longer the enemata are continued.

5. That in a very small percentage of cases irritability of the bowels attends its protracted use.

6. That it is a valuable aid to the stomach whenever the latter is inadequate to a complete nutrition of the system.

7. That its use is indicated in all cases not involving the large intestine, and requiring a tonic influence which can not readily be obtained by remedies employed in the usual way.

8. That in favorable cases it is capable of giving an impulse to nutrition which is rarely if ever obtained from the employment of other remedies.

9. That its use is wholly unattended by danger.

REPORT ON THE USE OF ETHER WITH COD-LIVER OIL.

The preliminary report on this subject made by this Committee to the Society last April covered 31 cases, and furnished strong evidence to support the claims of Dr. Foster, who first suggested the combination. We are now able to add 63 cases. Of these, 3 are reported by Dr. Bayles. 50 by Dr. Kinnicutt, and 10 by myself. A few of these will be given in brief.

Case I. Reported by Dr. Bayles.—Male, aged forty. Exhaustion following abscess in perinæum. Cod-liver oil with hypophosphites of lime and soda was first tried. This was tolerated by the stomach, but produced cerebral fullness, and plain oil was substituted. This disagreed with the stomach. Twenty minims of ether added to each dose of ʒ iij acted fairly well for two weeks, after which nausea and frequent vomiting came on. Subsequently ℥ ss. of the pure oil was given, and fifteen minutes afterward ʒ j of the spirit of sulph. ether in carbonic-acid water. This was continued two months with the happiest effect, the oil given this way being digested without difficulty.

Case II. Dr. Bayles.—Female, aged twenty-two. Exhaustion following abortion with putrid fœtus. Vomiting of food. Cod-liver oil was given, ʒ ij t. i. d., and twenty minutes afterward ♏ xx. of spt. ether. comp. On several occasions the ether was purposely omitted as a test, and the oil always produced gastric irritation. The experiment of giving the oil and the ether in the same dose was also tried, and resulted in less complete digestion of the oil than when the ether was given afterward, eructations, headache, etc., being produced.

Case III. Dr. Bayles.—Male, aged thirty-five. Chronic diarrhœa from imperfect stomach digestion. Attempts at rectal alimentation failed. Cod-liver oil followed by ether was given, and was well borne, and formed the principal nourishment for eight days, when the appetite returned and food was taken with some relish. After from twenty to thirty days the oil was discontinued altogether, a complete cure having been effected. Repeated experiments were made by omitting the ether or giving it in emulsion with the oil, but none of these attempts were successful.

Dr. Kinnicutt has administered ether with cod-liver oil in fifty cases, and has not met with a single instance in which the combination was not well borne. He has repeatedly prescribed the pure oil, and found that it disagreed, while the same patients afterward took the etherized oil with perfect ease. He quotes two such cases:

"*January 26, 1878.*—New York Hospital, out-patient department. K. B., aged eight months. Delicate anæmic child, with scrofulous diathesis. Ordered ol. morrh. ʒ ss. t. i. d.

"*July 1st.*—Patient is unable to take the oil, invariably vomiting immediately after its ingestion. Ordered spts. etheris ♏ jss. in each dose of oil.

"*July 13th.*—The *first* dose of the etherized oil was retained, and it has been given with the same success since. In connection with the above case I would mention that I have notes of a number of similar cases among very young children.

"*February 1, 1879.*—M. G., aged twenty-five. Patient is an anæmic woman, with scrofulous diathesis. Under treatment since August, 1878. Ol. morrh. was prescribed, but patient was unable to take it on account of nausea and vomiting produced. She has been able to take the etherized preparation with perfect ease, and its use has been attended with improved nutrition. On one occasion, through a mistake of the druggist, one half of the usual quantity of ether was used in the preparation of the prescription. The *first* dose was vomited, and subsequent ones, until the mistake was rectified. The *first* dose of the corrected preparation was retained."

In my own case I have not prescribed the etherized oil, unless I found by trial that the plain oil could not be borne. I have met with six such cases, in which the addition of the ether was completely successful.

In four other cases, in which the patients could not take the oil either plain or in emulsion, or with brandy, the difficulty was not overcome by prescribing ether with it.

The Committee are of the opinion that the evidence before them warrants the following conclusions:

1. That the addition of ether to cod-liver oil in about the proportion of fifteen minims to each half ounce (or an equivalent amount of the compound spirit of ether) will succeed in the vast majority of cases in enabling the patient to take the oil, even though it previously disagreed.

2. That in some cases in which the oil still disagrees after the addition of the ether, the difficulty may be overcome by giving the ether separately from fifteen minutes to half an hour after the oil is taken.

No facts have been laid before the Committee having a bearing upon the question as to whether the etherized oil is superior to the plain oil in its ultimate effect upon nutrition, supposing them to be equally well tolerated by the stomach.

Bibliographical and Literary Notes.

Art. I.—*The Bearings of Chronic Disease of the Heart upon Pregnancy Parturition, and Childbed.* With Papers on Puerperal Pleuro-pneumonia and Eclampsia. By Angus MacDonald, M. A., M. D., F. R. C. P. E., Lecturer on Midwifery and Diseases of Women in the Medical School, Edinburgh. London: J. & A. Churchill, 1878.

The book is based upon the histories of cases observed by the author himself, and the careful study and analysis of cases reported by others. The author's observations would lead him to conclude, in common with many observers, that there is hypertrophy of the left ventricle during pregnancy, and probably of the right; also, that there is increased arterial tension, especially during the latter months.

The cases are presented in groups—those cases in which there was one lesion in one group, those with another single lesion in another group, and those with a number of lesions in another group.

The author considers mitral stenosis as the most dangerous lesion. This is true of mitral stenosis apart from pregnancy. Mitral insufficiency was found to be the least dangerous. All valvular lesions are apt to alter for the worse during pregnancy. Pregnancy acts more injuriously on a heart which is suffering from a comparatively recent lesion, because the heart disease has not existed sufficiently long to establish compensation. Lactation aggravates cardiac disease. There is more tendency to premature labor in mitral stenosis than in other lesions. The author found that effusion into the right pleura was very apt to occur some time during the pregnancy if the cardiac disease was severe. His views coincide with those of Sir James Simpson, that cases of recent rheumatism run great risks of having fresh endocarditis during the puerperal state.

During the labor, the author thinks the time of greatest danger is in the second stage, when the weak heart becomes exhausted from the extra strain arising from the down-bearing efforts. He thinks the danger from disturbed pressure is past as soon as the child is expelled. No reference is made to the severe nervous shock, which plays so important a part in all labors complicated by heart disease.

Patients with heart disease get on very well until the fifth or sixth month; then disturbances begin, and frequently there is spontaneous interruption of the pregnancy.

There are certain points brought out by Dr. MacDonald well worthy of consideration. Some of them we give:

Chronic heart disease in the female, especially if it be severe mitral stenosis or serious aortic insufficiency, ought to contraindicate marriage. Patients with chronic heart disease ought not to suckle their children. Premature labor ought not to be induced except where there is dropsy of the amnion, or some other distention of the abdomen which keeps the diaphragm in a state of continuous elevation.

A very important conclusion arrived at by Dr. MacDonald is in regard to the use of chloroform in labor complicated with heart disease. He considers its use as not only *not* contra-indicated, but beneficial, if carefully administered. Professor Fordyce Barker has taught this view for many years, and even speaks more emphatically, viz.: that as the rule, heart disease complicating pregnancy *specially* indicates the use of chloroform.

The latter part of the book is taken up with papers on puerperal pleuro-pneumonia and eclampsia.

ART. II.—*Diseases of the Bladder and Urethra in Women.* By ALEXANDER J. C. SKENE, M. D., Professor of the Diseases of Women in the Long Island College Hospital, Fellow of the American Gynecological Society, the Obstetrical Society of New York, etc. New York: William Wood & Co., 1878.

DR. SKENE has done a good work in bringing together all available material on the diseases of the female bladder and urethra, and enriching the collection by the results of his own study and experience. It is rather surprising that no systematic treatise on this subject had appeared before in the English language, although the diseases to which this volume is devoted are exceedingly common, and often also exceedingly intractable. The book is composed of lectures, originally intended only for students, but amplified and rendered more nearly complete as a treatise. The author's plan begins with the anatomy of the bladder and urethra, and then proceeds with the functional and organic diseases of the bladder, and the various forms of cystitis. Neoplasms in the bladder are next discussed, and finally the various diseases of the urethra. The chapters on the bladder are very valuable, and include a minute description of the best methods of examining and exploring that organ. The author approves of dilating the urethra for purposes of diagnosis, and generally uses Hunter's dilator in preference to Simon's series of conical specula. In the treatment of the several diseases of the bladder described, there is perhaps too great a variety in the therapeutic measures recommended, so that it is not always easy to find out which the author himself prefers. The fullest credit is given to other writers whose views Dr. Skene has incorporated in his book. It must be remembered that the author is in some sense a pioneer in this fertile field, and does not claim to have made a complete work; but he has made one that gives promise of far greater completeness in the future. The style is clear and direct, but entirely free from dogmatism or assumption. The author does not attempt to teach what he does not know, and know in a manner satisfactory to himself. We heartily commend the work to our readers, bespeaking for it a cordial reception and for the author the gratitude of the profession.

ART. III.—*On the Surgery of the Face.* By FRANCIS MASON, F. R. C. S., Surgeon and Lecturer on Anatomy at St. Thomas's Hospital. London: J. & A. Churchill, 1878.

THIS book is not a systematic treatise on the surgical affections of the face, as the title might lead one to believe, but a series of three lectures which were delivered before the Medical Society of London about a year ago. The first lecture is devoted to the diseases, the second to the injuries, and the third to the deformities of this region; and they constitute together a well-printed octavo volume of one hundred and fifty pages. The author has not attempted to treat these subjects exhaustively. He has contented himself with brief but clear descriptions of diseased conditions, operations, etc., which have been made interesting by the introduction of a large number of illustrative cases from his own practice. In some instances he has certainly erred in the direction of brevity, as in the section on skin diseases, where parasitic diseases, eczema, and herpes are barely mentioned in the space of half a page each; and in the paragraph on "Permanent Closure of the Jaws," where no details as to the performance of Esmarch's and Rizzoli's operations are to be found. Harelip and cleft palate, too, are treated of very cursorily. There are, however, many interesting cases of new growths mentioned, with illustrations, and the chapter on injuries contains many unusual and instructive facts. Not much space is given to plastic operations, but several good cases of operation for cicatrices from burns are mentioned, and a somewhat unique rhinoplasty, in which three flaps were made use of, one from the forehead and two from the cheeks. The volume is very well written, and plentifully illustrated. It will be found attractive reading, and especially instructive in those matters in which the author's experience has been largest.

ART. IV.—*Pathological and Practical Observations on Diseases of the Abdomen, comprising those of the Stomach and other parts of the Alimentary Canal, Œsophagus, Cæcum, Intestines, and Peritonæum.* By S. O. HABERSHON, M. D., Lond., Fellow of the Royal College of Physicians, late Lecturer on the Principles and Practice of Medicine at Guy's Hospital, etc. Third edition, considerably enlarged and revised. Philadelphia: Lindsay & Blakiston, 1878. Pp. 706.

THIS valuable treatise on diseases of the stomach and abdomen has been out of print for several years, and is therefore not so well known to the profession as it deserves to be. It will be found a cyclopædia of information, systematically arranged, on all diseases of the alimentary tract, from the mouth to the rectum. A fair proportion of each chapter is devoted to symptoms, pathology, and therapeutics. The present edition is fuller than former ones in many particulars, and has been thoroughly revised and amended by the author. Several new chapters have been added, bringing the work fully up to the times, and making it a volume of interest to the practitioner in every field of medicine and surgery. Perverted nutrition is in some form associated with all the diseases we have to combat, and we need all the light that can be obtained on a subject so broad and general. Dr. Habershon's work is one that every practitioner should read and study for himself.

ART. V.—*A Practical Treatise on the Diseases of the Testis, and of the Spermatic Cord and Scrotum.* By T. B. CURLING, F. R. S., Consulting Surgeon to the London Hospital, etc. London: J. & A. Churchill, 1878. Pp. 650.

IT happens now and then that a book retains its hold on the profession so persistently that its author is obliged in self-defense to rouse himself and make it worthy of its fame. That is the case in the present instance. Since the last edition of Curling's work appeared great advances have been made in pathology, and the author has found it necessary to modify his views on many important points. This he has done bravely and conscientiously, and he has at the same time made many additions from his riper experience that greatly enhance the value of the work. Some new subjects are introduced; among others, "Congenital Hydrocele of the Spermatic Cord and Lymph Scrotum," as described by Dr. Patrick Manson. The volume as it now appears is the most complete and satisfactory one on the subject in the English language.

ART. VI.—*A Manual for the Practice of Surgery.* By THOMAS BRYANT, F. R. C. S., Surgeon to and Lecturer on Surgery at Guy's Hospital, etc. With 672 Illustrations. Second American from the third revised and enlarged English edition. Philadelphia: Henry C. Lea, 1879.

THE appearance of a new edition of a book after a brief interval generally supersedes the necessity for review or criticism. Bryant's "Surgery" has been favorably received from the first, and evidently grows in the esteem of the profession with each succeeding edition. In glancing over the volume before us, we find proof in almost every chapter of the thorough revision which the work has undergone, many parts having been cut out and replaced by matter entirely fresh. Eighty-eight of the wood-cuts are new, making in all nearly seven hundred illustrations, most of which are original with the author, and not to be found in other works on surgery.

ART. VII.—*General Surgical Pathology and Therapeutics, in Fifty-one Lectures: a Text-Book for Students and Physicians.* By Dr. THEODOR BILLROTH, Professor of Surgery in Vienna. Translated from the fourth German edition with the special permission of the author, and revised from the eighth edition, by CHARLES E. HACKLEY, A. M., M. D., Physician to the New York Hospital, Fellow of the New York Academy of Medicine. New York: D. Appleton & Co., 1879. Pp. 773. Price, $5, cloth.

THE present edition of this standard work corresponds to the eighth German edition, and includes, either in the text or the appendix, all that is new in the original volume, making seventy-four additional pages, with a number of new wood-cuts. In the additional matter we notice a chapter on amputations and resections, and frequent reference to Lister's antiseptic treatment. This work has now been translated into the French, Italian, Russian, Hungarian, and (latterly) Japanese languages.

ART. VIII.—*A Practical Manual of the Diseases of Children, with a Formulary.* By EDWARD ELLIS, M. D., late Senior Physician to the Victoria Hospital for Sick Children, late Physician to the Samaritan Hospital for Women and Children, etc. Third edition. New York: William Wood & Co., 1879. 8vo, pp. 213.

THIS manual is the second one of the Messrs. Woods' "Library of Standard Medical Authors." It is the best work of its size with which we are acquainted on diseases of children. The third edition is a decided improvement on its predecessors, and, though adapted rather to the English practice than to the American in treatment, it will be found a very useful hand-book.

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Reports on the Progress of Medicine.

QUARTERLY REPORT ON LARYNGOLOGY.

No. XVII.

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Since the publication of our last "Report," a valuable addition has been made to the literary resources of all laryngologists by the appearance in the "London Medical Record" of January 15th of a department devoted to laryngology, which, under the able editorship of Dr. Felix Sémon, aims to give information on all recently published communications relating to diseases of the pharynx, larynx, and nose. Dr. Sémon's reputation as a careful observer and writer is a guarantee that the work intrusted to him will be well performed, as is indeed proved by the excellence of his first report, which lies before us, and which has been of much service in the preparation of the material for the following quarterly report of our own. The appearance of such a report in such a well-known journal is likewise a gratifying evidence of the increasing interest which is being taken in our department abroad.

1. See Reference No. 56 for a case of somewhat similar character reported by Paget.

2, 4. Bruns extirpated on January 29, 1878, the entire larynx of a man aged fifty-four, on account of diffuse carcinoma. The patient had suffered from 1874 with hoarseness, and from 1876 with dyspnœa, and recently with attacks of cough, dysphagia, and laryngeal spasm. The operation was performed, without a previous tracheotomy, as follows: After laying bare the anterior portions of the larynx and checking the slight hæmorrhage, the trachea was cut across at its upper ring, and the larynx, after placing a tampon canula in the divided trachea, dissected out from below upward. The patient did well after the operation, and in three weeks was furnished with Gussenbauer's artificial larynx. Owing, however, to some difficulties caused by its use in the case, Bruns had a new apparatus constructed. This does not appear to vary very essentially in its main features from the above-named apparatus, the modifications being called for apparently by the indications in the special case for which it was made.

3. The diagnosis in this case does not appear to have been certain. No laryngoscopic examination was made. The pharynx was red, granular, and devoid of mucous membrane in patches; dullness over both lungs with well-marked mucous rales; breathing difficult and labored; face cyanotic; voice indistinct; and sleep caused such a dryness and spasm of the glottis that "the neighbors and her family would gather at her bedside to witness her death." Tracheotomy was performed, and the canula kept in for two weeks, when the improvement was sufficient to permit of its removal. She could then breathe easily through the larynx. The ulceration of the pharynx had disappeared, as had the dullness of the lungs with the exception of a small spot at the apex of the left.

6. The patient was a man sixty-eight years of age. About twelve months before admission, he first noticed a small black pimple on the end of his nose. Not liking the appearance of this, he one day got the barber to shave it off with a razor. It soon appeared again, however, had grown steadily ever since, and had been liable to bleed occasionally after slight injury; lately it had become very painful. The patient stated that he had lost weight considerably since the growth had existed. On admission his condition was as follows: He had a nearly globular, slightly pulsatile tumor, about the size of a walnut, attached to the end of the nose by a very short and narrow pedicle; the mass was of a dark grayish-brown color, of rather soft consistence, and ulcerated over nearly the whole surface; the adjacent skin and the substance of the nose appeared quite healthy; there was no implication of glands. On April 23d Mr. Baker removed the tumor, having first applied a ligature to the pedicle. On section the growth presented a mottled or marbled appearance, from variations in the degree of pigmentation. Microscopic examination showed it to consist of a scanty fibrous stroma, forming large alveoli, in which were massed numbers of well-formed epithelial cells of various forms, many of them containing dark pigment-granules.

7. This occurred in a man aged thirty-two. The tumor was of a nearly globular outline, firmly attached to the posterior two thirds of the right half of the hard palate. It had an elastic, almost fluctuating feel, but on puncture no fluid escaped. The patient stated that he first noticed it about twelve months ago; it had grown steadily, and had been accompanied with but little pain. On February 24th Bartlett removed the tumor. The muco-periosteum having been incised all around it down to the bone, the whole mass was forcibly detached with a raspatory. The patient made a good recovery, and was discharged March 8th. On section the tumor presented a uniform whitish appearance throughout; its substance was rather soft and very elastic. Examined microscopically, it was found to be of a sarcomatous nature, consisting of small cells, mostly spherical, lying loosely in the meshes of a reticularly arranged fibrous intercellular material.

8. The following were the laryngoscopic appearances seen by Dr. B. Baginsky in a case of croup: The pharynx was congested; the mucous membrane swollen; no pseudo-membranes. The epiglottis was somewhat congested; there was serous infiltration of the ary-epiglottic ligaments; the ventricular bands were blood-red, swollen, succulent, showing the

highest degree of inflammation, and but here and there covered by a yellowish or white-grayish membrane. The true vocal cords were much swollen and congested; no membranes could be detected on them. The image of the glottis was as follows: The vocal cords touched each other on both commissures, leaving during inspiration but a small hole in the midst of the glottis between themselves. The arytenoid cartilages were immovable, touching each other. The mucous membrane on the inter-arytenoid fold and round the crico-arytenoid articulation on both sides was swollen and succulent. The little patient, a boy aged four and a half years, died, tracheotomy having been performed. The *post-mortem* examination of the larynx showed the usual appearances. Baginsky explains the dyspnœa met with in croup, in accordance with Bretonneau, Gerhard, etc., by the mechanical obstruction of the air passages only, and does not believe in an actual paralysis of the abductors of the vocal cords, although they may be somewhat implicated in the morbid process.

9. At a meeting of the Königsberg Medical Society, Dr. Burow showed two patients with papillomatous growth on the vocal cords, whose cases are figured in his Atlas as Nos. 3 and 4. In one of these there has been a recurrence of the growth after the lapse of eleven years.

13. An infant of five months was supposed to be suffering from membranous croup. Learning that the child was constipated, it occurred to the doctor to examine the rectum. In its pouches was found a plug. As soon as removed, the symptoms of croup disappeared. When the plug was dissolved, it was found to have for its nucleus a white feather.

14. Catti gives us in his paper simply a *résumé* of the views of Voltolini, Meyer, Politzer, and Störk as to the proper methods of treating adenoid vegetations of the naso-pharyngeal space.

16. The subject was a male Indian, about thirty years of age, who died of tubercular deposit in lungs, with pneumonia. The larynx was removed entire, and divided posteriorly from above downward, between the arytenoid and through the cricoid cartilage. Folding the sides of the organ outward, a limited deposit of tubercular material was observed in the lower portion, mostly confined to the right side. The right vocal cord presented nothing unusual; the left was divided at its posterior third into a superior and an inferior fasciculus, the former passing upward and backward to the false cord, its fibers running parallel with and being inserted in common with that ligament at the anterior surface of the arytenoid cartilage. The inferior extended backward, and was inserted into the anterior angle of the same cartilage as usual.

The mucous membrane being carried upward along with the superior fragment, a third ventricle was formed, which was about one third the normal size, covered with mucous membrane, and rather oval in shape. The free margin of the right vocal cord measured seven eighths of an inch in length; the left, as far back as the division, nearly five eighths; and each fasciculus a fraction more than two eighths. The motion of the left cord was limited, and its free margin turned upward and somewhat outward, or into the ventricle proper. The case came under the doctor's observation a few days before death, but was so extremely feeble that an examination with the laryngoscope was not attempted. Voice had always been good.

17. Dr. Cohen, in the course of a very instructive lecture on laryngeal phthisis, says: "The condition is what I should be safe in calling the chronic laryngitis of phthisis, since it is still a matter of much doubt as to whether there is any such thing as laryngeal phthisis independently of the disease of the lungs. As a general thing, there is found to be more or less disease of the lung tissue in all cases. The disease will be found to have attacked the same side in both the lungs and larynx. Possibly the disease may be-

gin in the larynx. I have, however, never seen a case where there was not, at the same time, more or less implication of the lung substance; and I believe that where we can not determine upon the coexistence of lung disease, it is only due to the fact that the disease in the lungs is not sufficiently advanced to be detected.

"It is still a mooted question as to whether tubercles ever exist in the larynx. Some of the best authorities say that they do, while others, equally reliable, deny it altogether. I have never been able to detect tubercles in the larynx in a *post-mortem* dissection of the parts.

"Laryngeal phthisis is characterized by an inflammation of the mucous membrane and of great numbers of the follicular glands at the root of the epiglottis, and also in the ventricular bands and over the arytenoid cartilages. A group of glands is inflamed, disintegrates, and ulcerates. The process of ulceration joins the glands together, and they are thus found to form a species of racemose ulcer—the so-called *phthisical* ulcer. This ulceration, continuing and going deeper, involves the submucous tissues, the muscles, the perichondrium, and finally the cartilage itself, producing perichondritis, chondritis, caries, and finally necrosis."

19. Duncan's paper is an excellent exposition of the subject and *résumé* of the present method of treating catarrhal affections of the nasal passages, and contains much advice and many hints which will be of value to practitioners. Among other points, he tells us that the successful treatment of catarrh is largely confined to local applications, although the necessity for treating internally every disorder of the system is earnestly urged. Always in treating a diseased surface, cleanliness is recognized as the chief requisite. The fact that alkaline solutions have a solvent effect on mucus is utilized, and all of the cleansing solutions contain some form of alkali; and, as in many cases there is a decomposition of the retained secretion, an antiseptic or disinfectant is used. Any combination of these two medicines, in weak solution, will answer, but that which seems to be as efficient as any, and in use at the clinic, is Dobell's solution:

℞. Acidi carbol.	ʒ iss.
Sodii biboratis,	
Sodii bicarb., āā	ʒ ij.
Glycerinæ	f ℥ ij.
Aquæ ad	f Oij.
M.	

It is used with the atomizer, the post-pharyngeal syringe, and the nasal douche. The best method of using the cleansing solution is with the post-pharyngeal syringe, which is both safe and efficient. The solution can also be used in a spray driven by compressed air, either by a hand-ball atomizer, or a pump and receiver. The last is very efficient when used with about thirty pounds pressure, and will dislodge mucus from the superior meatuses, and even the entrance of the sinuses. It is better for children than the post-pharyngeal syringe.

The next step in the treatment is the application of the medicines adapted to the case, which is made in the form of spray, powder, or solution. The spray spreads out in every direction, and reaches cavities otherwise almost inaccessible, and is therefore the choice method. In simple catarrh the object in view is to reduce the amount of inflammation by the use of astringents. Select astringents of different strengths and kinds to suit each case. For a standard astringent, sulphate of zinc, gr. xv.–aq. ℥ j, is a good one. If the case be a mild one, do not use it stronger than three grains. If the catarrh be of long standing, see the patient three times a week, and in the intervals let him use the cleansing solution home, with Delano's atomizer, or the post-pharyngeal douche. Ferric alum, gr. v.–xx. to aq. ℥j., is valuable when there is excess of secretion and little sensibility. Chlorate of potash, nitrate of silver, tannin, and chloride of zinc may be used. Ring the changes on the astringents until a good one is found, and stick to it. When pain, lasting longer than half an hour, follows the use of the astringent, use a spray of U. S. solution of morphine When there is hypertrophy to deal with, stronger applications are needed. Caustics can be applied with a probe, one end of which is tightly wrapped with cotton. The hypertrophied tissue must be destroyed; crushing it with forceps, cutting it with a knife, and galvano-cautery are allowable. The polypoid thickening of the ends of the turbinate bones can be touched with caustics, applied by means of a probe passed through a shield. Curette the vault when there is adenoid degeneration.

20. Very few laryngoscopical examinations of leprous patients have hitherto been reported. Indeed, in this country, the disease itself is so rarely met with that every contribution to its statistics is of some value.

In the first of Dr. Elsberg's interesting cases, the patient, a Cuban aged nineteen, stated that during the last year he had noticed a gradual change in his voice. He has always been fond of music, and sang a high tenor; now he speaks in a peculiarly husky or muffled tone, and, when he attempts to reach a high note or sing softly, he finds that he is not able to make any sound. He is obliged to constantly clear his throat, and he suffers a little from dyspnœa after exertion. He has no difficulty in deglutition, but in drinking water he is relieved by pressing on his thyroid cartilage. When examined with the laryngoscope by Dr. Elsberg, it was found that the air passages have undergone changes similar to those on the face. All the portions of the mouth and throat, rich in loose connective and adipose tissues, are more or less involved, while, where the mucous membrane is attached more closely to the harder structures beneath, it is intact. The tongue is large, swollen, and fissured, but there are no ulcerations. The uvula is long, and the surface made uneven by the presence of several small tubers. With the exception of some hyperæmia and hypersecretion, there are no pathological changes on either the hard or soft palate or the pharynx. The laryngoscope revealed a large, thick, congested epiglottis. Its free margin had lost its symmetry, and seemed to be carried backward over the larynx by the weight of the tuberous masses, which covered it so that only its lingual surface could be seen. Such masses were on each side of the frenum, and extended forward toward the tongue. Only the arytenoid cartilages and parts of the vocal bands appeared in the mirror when the epiglottis was slightly raised during forced inspiration. To see all the parts required a number of views and various manœuvres. The upper aperture of the larynx has become irregular and altogether smaller. The ary-epiglottic folds are tumefied and studded sparingly with small tubers. The ventricular folds present the same swollen and congested appearance, with a number of tuberosities, and partially cover the vocal bands, so that during phonation only the inner edges of the latter can be seen. These are white and glistening. The mucous membrane covering the arytenoid cartilages is greatly swollen, and dark red in color. Two tubers of somewhat larger size are on the right arytenoid, and one on the left. The parts move sluggishly during phonation. The mucous membrane of the larynx and surrounding parts hypersecretes.

The second case occurred in the person of a New-Yorker, aged forty-five, who however had lived in Cuba. An examination in his case showed the gums to be red and somewhat swollen, but there is no ulceration; the tonsils seem to be very slightly affected. The palato-glossal and palato-pharyngeal folds have been ulcerated through, and become adherent in several places. The inner side of the cheeks and posterior wall of the pharynx are dotted with small papillary excrescences; there is one large ulcer on the hard palate. The patient has ozænic catarrh, and although the pituitary membrane seems to be injected, none of the tuberosities are apparent in either the nasal organ or pharyngo-nasal space. The epiglottis is considerably tumefied, its free edge thick and irregular, with angular lateral boundaries. It hangs heavily back over the larynx, and seems to have lost its elasticity. The ary-epiglottic folds and the ventricular bands are enlarged, congested, and uneven, covered with a few large and many smaller tubers. The lumps partially hide and give to the arytenoid cartilages an ill-defined and shapeless appearance. The posterior halves of the vocal bands are masked beneath this new growth.

Two large lumps are seen, the one anterior and the other posterior to the left arytenoid, on its inner side. The right arytenoid, although involved throughout its whole extent, has no tuberosities which rise above the general level and which are sharply defined. There is less swelling about the anterior half of the rima glottidis, and the vocal bands can be seen to approach each other during phonation. They are of a dirty yellow color. In the inter-arytenoid space one large tuber stands out prominently into the larynx.

21. The history of the case is not communicated, and it is only said that the patient was finally saved by the ligature of the common carotid.

22. This was a demonstration of a patient suffering from cauliflower growths along the left vocal cord, before the Glasgow Pathological and Clinical Society. The patient's voice was reduced to a whisper, but never broken or interrupted. There was no cough.

25. The rarity of critical pathological examinations in cases of ozæna—due to the facts that it is only of late that much interest has been taken in its anatomico-pathological nature and causes, that patients afflicted with the disease are rarely subjects for *post-mortem* examination, and the difficulty of making said examination thoroughly without extensive disfigurement of the face and head—gives a practical value to Fränkel's full description of his researches, and the results of his examinations in four cases of ozæna in the *post-mortem* room, by the method of Schalle.—"A New Method for the Section of the Nose, Pharynx, and Ear," in "Virchow's Archiv," Bd. 72, Heft 2.

27, 32. See Reference No. 34.

28. In a paper recently read on this subject in the Congress of the French Association for the Progress of Science, and in a paper in the "Gazette Hebdomad.," Gougenheim comes to the following conclusions: 1. The infiltration of the ary-epiglottic folds (œdema glottidis proprium) is most frequently a pathological error (?). 2. To attribute to the engorgement of these folds, or of the interior of the larynx, the terrible symptoms of œdema glottidis, is by no means justifiable. 3. In the production of these symptoms the compression of nerve fibers plays probably the most important rôle. 4. Scarifications, and similar methods to which recourse has been had up to the present, because the symptoms of paralysis of the posterior crico-arytenoid muscles have wrongly been attributed to œdema glottidis, are dangerous and useless methods. Topical applications may be allowed in cases of hyperplastic changes, and in tuberculous laryngitis, but they are absolutely contraindicated in cases of respiratory trouble. These being due to paralysis of the abductors, not to œdema glottidis, tracheotomy gives the only chance of a successful result (?).

29. Ganghofner's interesting and valuable paper has for its basis all that has been written during the past three years upon those pathological processes of a chronic nature which have as a result partial or complete occlusion of the nares and post-nasal space, the larynx and the trachea,

and upon the treatment of the various conditions. The causes considered under the head of the first-named class are polypi and adenoid vegetations; under that of laryngo-tracheal stenoses, 1, cicatricial and membranous adhesions, especially in syphilis, more rarely through ulceration of a tuberculous nature or after diphtheria and typhoid; 2, neoplasms; 3, inflammatory hypertrophies and thickening of the walls of the air passage; and, finally, under the latter heads, growths in the larynx proper, and compression of the trachea from external causes. All are thoroughly reviewed, and the article will be found a very complete and useful *résumé* of the whole subject. References are given to all the authors quoted.

34. Hart expresses the opinion, from close observation, that the cases reported by Fox as being ones of "spreading quinsy" (Art. 27) are really instances of diphtheria in a mild form, and that there is no more difference between them and true diphtheria than there is between mild scarlatina and malignant scarlet fever.

36. Having given a short history of the attempts at mechanical treatment of laryngeal stenoses, and a description of methods and instruments used for this purpose, the author describes a case in which hollow, triangularly shaped, hard caoutchouc tubes (such as those invented and used by Schrötter for gradual dilatation of chronic laryngeal stenoses) were for the first time successfully employed in an acute laryngeal affection, viz., in œdema glottidis. The false vocal cords being in this case so much swollen that they not only touched, but even partially covered, each other, the author managed, in spite of the patient's urgent dyspnœa, to introduce one of these tubes, which remained in the patient's larynx without causing much local discomfort, and enabled him at the same time to breathe freely. By gradually introducing larger tubes, the serous effusion into the ventricular bands was pressed away, and the patient cured within two days. The author strongly recommends, in consequence of this excellent result, the trial of this method, which will, he thinks, often not only replace successfully tracheotomy, but even cure the original disease in cases of, 1, œdema glottidis; 2, abscess of the larynx, either of primary origin or resulting from perichondritis; 3, hæmorrhage into the sub-mucous tissue of the larynx; 4, fracture of the laryngeal cartilages; 5, spasm of the larynx; 6, paralysis of the posterior crico-arytenoid muscles. On the other hand, he is not much in favor of the catheterism of the larynx in cases of croup, not only because former attempts in this direction have ended very unluckily (Bouchut), but especially because it is not possible to introduce the laryngoscope in by far the greater majority of children suffering from that disease, and because the author is "*a priori* preoccupied against any instrumental interference within the larynx without the most careful control by means of the laryngoscope."

37. Dr. Heymann considers the symptom—close approximation of the false vocal cords when phonation is intended—to be possibly due to spasmodic contraction of the muscular fibers which are contained in these folds of mucous membrane. Thus the symptom would be somewhat analagous to writer's cramp.

38. The first of these two cases was an instance of complete paralysis of the right recurrent, and of paresis of the left recurrent nerve, in consequence of aneurism of the aorta and of the anonyma. The second was a case of bilateral paralysis of the recurrent nerve (the third ever put on record), due, as the author believes, to a simple laryngeal catarrh (?).

39. The following conclusions, drawn by Krishaber from a long series of most instructive cases, are set forth after a truly excellent clinical lecture on the etiology, the pathology, the dangers, and the treatment of the respiratory troubles in the different stages of syphilis: 1. The syphilitic

laryngostenoses show themselves at the most varying periods after infection. 2. Their late appearance is not always, but most frequently, a proof of the presence of an advanced stage of syphilis. 3. The lesions which produce laryngostenosis in syphilis are different, according to the sudden or slow appearance of respiratory troubles. 4. The sudden narrowing is almost always due to œdema, which accompanies the different specific manifestations; the slow narrowing is most frequently the consequence of a hypertrophic or luxuriant inflammation; sometimes it is due to cicatricial narrowing, and least frequently to the formation of an osseous tumor. 5. The respiratory accidents are the graver, the closer the causating lesions are found to the tracheal region. Tracheal lesions themselves are most frequently fatal. 6. The slow form of syphilitic laryngostenosis may be complicated by œdema and suddenly take an acute course. This complication, however, is not frequent. 7. The acute form of syphilitic laryngostenosis may be successfully and quickly fought by specific treatment, and surgical intervention may be avoided even in cases of apparently imminent asphyxia. 8. The specific treatment must exhibit from the beginning very high doses, and must be continued in gradually diminishing intensity, even after the cessation of the respiratory troubles, in order to avoid recurrences. 9. The slow form gives way to the treatment the more reluctantly, the more insidious and prolonged has been its invasion. 10. The slow narrowing is arrested sometimes spontaneously, and tracheotomy is then not called for; this narrowing, however, never undergoes a spontaneous regressive metamorphosis. 11. If there be, in consequence of cicatricial narrowing, any tendency to obliteration of the larynx, this will take place, whatever might be done; the opening of the air passages, and the uninterrupted wearing of the canula, are imperiously demanded in this case. 12. The results of the mechanical dilatation of the larynx have not yet received their consecration by time. 13. The syphilitic vegetations of the larynx may be destroyed or removed like other non-specific laryngeal growths. 14. The differential diagnosis between simple and syphilitic vegetations is rather easy; but there are difficulties regarding the differential diagnosis of syphilitic, tuberculous, and carcinomatous neoplasms. 15. In all forms of syphilitic stenosis, cough is rare, and pain little marked. 16. The conservation of the voice is compatible with the gravity of the evil. 17. Except the case of growth, the local treatment of syphilitic laryngostenosis is useless. 18. In the overwhelming majority of cases, the choice of treatment is to be made between specific medication and tracheotomy (or laryngotomy). In certain cases both methods will find their employment. These are the important conclusions of Krishaber's paper.

42. Two cases which are of interest from the unusual cause of the paralysis of the dilator muscles of the glottis, namely, syphilis, both were speedily relieved and ultimately cured by the free use of iodide of potash, and without the performance of tracheotomy, although the urgency of the symptoms in one of the cases seemed to render it imperative.

43. Dr. Felix Sémon reviews Loewe's work in the following words: "In this eminently industrious and thorough monograph, the results of a long series of researches are described, converted by Loewe of Berlin into the general and minute anatomy of the nose and of the oral cavity. It is to be regretted that for various reasons, stated in the introduction, the author's examination could not be conducted on the human subject, but on a rabbit, as his great ability and industry would certainly have been in a higher degree rewarded if his conclusions could have been directly traced from the human mouth and nose; but even in their present form, the clear and lucid description of his own opinions, the impartial reports of the different views of other authors, and the numerous interesting physiological remarks, secure a foremost place for the modestly written, short explanations

of the author, while the splendid photochromic illustrations which are taken without exception from very excellent sections form another attractive feature of the work."

48. At the meeting of German naturalists at Cassel, Dr. Mannel, of Bremen, showed a boy, aged twelve, suffering from spondy-larthrocace of the cervical vertebræ, on whom, by pressure on the left superior laryngeal nerve, a spasmodic attack within the larynx, similar to whooping-cough, could easily be produced. As there was complete integrity of all the parts of the larynx, Dr. Manuel attributed the symptom to irritation of that nerve produced by the bone disease.

49. In a paper read before the laryngoscopic section of the Associazione Medica Italiana at Pisa, the author recommends strongly the exhibition of topical applications in cases of mucous patches or of syphilitic erythema of the larynx. The meeting, which comprised most of the eminent Italian laryngoscopists, shared in his views.

51. In a paper read before the Medical Society of Cologne, the author enumerates the different diseases which may lead to dysphagia, mentioning especially the herpetic inflammation of the pharynx and larynx (which leads to the formation of numerous yellowish vesicles on the surface of the swollen and congested mucous membrane of these parts), and the acute œdema of the anterior surface of the epiglottis, which he calls "angina epiglottica anterior." He thinks that this affection might be sometimes mistaken for croup, as the symptoms would be in both instances very much alike.

53. In the case mentioned by Schreiber, Professor Nannyn, having observed that the stridulous breathing ceased when the patient made voluntarily some deep inspirations, availed himself of this discovery by instituting a kind of gymnastical treatment of the affected muscles, consisting in methodical deep inspirations. He states that this treatment was accompanied by perfect success.

56. At a recent meeting of the Clinical Society of London, Sir James Paget read notes of a somewhat mysterious case of watery discharge from the left nostril of a patient aged forty-nine. The fluid, several ounces per diem in quantity, had been dropping for eighteen months. It looked like pure water, or that of the pia mater, or that from an acephalocyst. General health good; no local disease of the nose. Two years ago the patient received a heavy blow over the left frontal sinus, but this seemed to have done no harm at the time. Six months later the dropping began, and has continued with rare intermissions up to this day. By mental exertion the quantity is increased. The fluid is slightly alkaline, and contains proteid matter, probably albumen, chloride of sodium, phosphates, and a slight trace of iron, but no grape sugar. Specific gravity = 1004 to 1010. Sir James Paget expressed finally, though speaking with much doubt, his opinion that the fluid was derived either from a frontal or ethmoidal sinus, or from the subarachnoid space, or the sac of the arachnoid membrane. The case seems to be unique, as appeared from the subsequent debate.

57. Pinder describes an affection of the posterior wall of the pharynx, to be found in scurvy, consisting in miliary excrescences on the pale surface of the mucous membrane, and originating often even before the gums are affected. Their main extension is a longitudinal one, their color generally lighter than that of the surrounding parts, but sometimes darker. There might be hæmorrhage, with subsequent destruction of these granulations, but these symptoms are found in the worst cases only. As a rule, the granulations are soon covered by yellowish incrustations, which may unite and form large plaques. In another form there is a more diffuse eruption of very small excrescences, and the mucous membrane appears as if covered by a yellow varnish. In the above-mentioned rare hæmorrhagic

cases the excrescences change into scorbutic ulcers, readily to be recognized by the sanguinolent infiltration of their borders and the similar base In such cases there is almost always odynphagia. The pharyngeal affection was present in 69 per cent. of the author's observations, the total number of cases of scurvy being forty-two. The treatment is analogous to that of scurvy of the gums, only the scorbutic ulcers demand local application of nitrate of silver.

(*To be Concluded in next Number.*)

CONTRIBUTED BY DRS. E. FRANKEL, W. T. BULL, AND G. R. CUTTER.

SURGERY.

Pathogenesis of Cerebral Hæmorrhage.—After a prolonged investigation of the subject, G. Eichler ("Deutsch. Arch. f. klin. Med.," B. 22, H. 1) has arrived at the following results: Primary idiopathic cerebral hæmorrhage is due to the rupture of miliary aneurisms of the small cerebral arteries. Miliary aneurisms are true total spontaneous aneurisms. They are developed as a result of a chronic endarteritis, which is identical with sclerosis of the artery, and like this is an affection which essentially belongs to advanced age. Dissecting aneurisms should be distinguished from the miliary: they are simple hæmatomata in the walls of the vessels, and are never the cause but are only the result of a hæmorrhage. Capillary ectosis should also be distinguished from miliary aneurisms. They are to be compared to telangiectasia of other organs, and like these may be hereditary.—"Ugeskritt f. Laeger," August, 1878. G. R. C.

Danger of Powerful Remedies during Kidney Disease.—According to Chauvet's investigations ("Berl. klin. Wochenschr.," No. 29, 1878), the diseased kidneys have to a considerable degree lost their power of excreting medicinal substances from the blood. While under normal conditions one third to two thirds of the sulphate of quinine taken is carried off by way of the urine, only one tenth to one fiftieth is removed in this way during interstitial nephritis. Bromide of potassium is entirely excreted by the twentieth day by a healthy individual, while this does not occur in one with kidney affection before the thirtieth to thirty-fifth. Two grains of iodide of potassium is normally excreted in the course of three days; in nephritis in five to twelve days. Three grammes of salicylate of soda is normally excreted in the course of two to three days; through diseased kidneys in five to six days. The author therefore advises close attention to be paid to the condition of the kidneys when powerful medicines are used, as they may have a fatal effect in such cases. The matter may be of great importance in a medico-legal point of view.—"Ugeskrift f. Laeger," August, 1878. G. R. C.

Dependent Position of the Head (Rose's Position) in Tracheotomy.—Dr. Schneider (Schönebeck) has performed tracheotomy five times with the head in this position, and recommends it urgently because, 1, it affords a much better illumination of the field of operation than the usual position; 2, the tissues of the anterior part of the neck are kept constantly on the stretch; and 3, flowing of blood into the trachea is prevented.—"Deutsche med. Woch.," 49, 1878. W. T. B.

Bloodless Operations on the Tongue.—C. Langenbuch ("Langenbeck's Archiv") has suggested a method for bloodless operations on the lips and cheeks, which consist in surrounding the whole operative field with ligatures until the wound of operation is sewed, the final check of hæmorrhage being the suture. He also recommends these temporary ligatures in operations on the tongue in cases where the disease does not extend too near the base. Each half of the tongue is surrounded by a ligature passed through the margin so as to prevent slipping. In the operation, the wound is so shaped that the ligatures need not be removed until after the sutures have been introduced. The author proved in two cases that these operations can be performed without any bleeding. In both cases the union was by first intention. E. F.

Replacing of Extracted Teeth.—In a communication to the Académie de Médecine, M. David states that he has in twenty instances replaced teeth which had been removed for the performance of operations impracticable within the mouth. In all but one case the teeth were firmly fixed at the end of ten or twelve days, their functions restored, and the diseased conditions cured.—"Gaz. Hebd.," No. 47, 1878.

Removal of Loose Cartilage from the Knee-Joint.—A recent discussion in the Société de Chirurgie brought out interesting facts in regard to the relative merit of the subcutaneous method (Goyrand) and the direct incision with antiseptic dressing. M. Verneuil removed by direct incision, with "antiseptic precautions," two loose bodies from the knee-joint. They were composed wholly of cartilage. Cotton dressing from foot to buttock for twenty days. Wound healed without effusion, and the patient walked on the twenty-fourth day. M. Lucas-Championnière stated that the most favorable result could be obtained by strictly following Lister's method. He had removed a loose cartilage of the size of an almond from the knee-joint of a patient who made a perfect recovery. He had also incised and drained a suppurating knee-joint in a woman after delivery. The high fever fell at once, and in two months he could begin passive motion. M. Gillette had operated once by direct incision—closing the wound with gold-beaters' skin and collodion, and applying cotton dressing only—with satisfactory result. He advocated operating rapidly, applying cotton and immobilizing the limb. M. Paquet (of Lille) had twice extracted bodies by direct incision. Wound irrigated with thymic acid; bandage of linen with collodion; immovable apparatus. One patient died from exhaustion due to phlegmon of calf, the joint remaining healthy. The other recovered. M. Tillaux asserted that it was proper to remove such bodies only when they gave much inconvenience, and that patients should be warned that the operation was a serious one. He had practiced Goyrand's method (fixation of the body in the subcutaneous tissue and subsequent extraction) in one case with success. In another this method failed, and he resorted to direct incision with good result. He was positively in favor of the subcutaneous method; if it fail, the incision. M. Guyon presented a large body extracted by Goyrand's plan, but after two unsuccessful attempts. Patient recovered. All surgeons agree that the operation is difficult. Compared with the older method (direct incision without antiseptic treatment), it has lessened mortality, but increased the number of unsuccessful operations. The antiseptic method appears to give better statistics. M. Deprès had practiced Goyrand's operation twice with good result. M. Verneuil had in one case tried the subcutaneous method twice without success. The patient had a slight arthritis. Statistics of Goyrand's operation show in 100 cases 48 cures, 12 deaths, 38 failures. With direct incision and Lister's dressing 25 cases give 2 deaths and no failures. These figures show the latter to be the better plan of treatment. He would use cotton dressing in place of Lister's, because it is more feasible for most surgeons. In case the body were loose and near the periphery above or below, he would, however, try Goyrand's method, and if unsuccessful the direct incision.—(Three lectures on this topic, "Gaz. Hebd.," 46 and 48, 1878, with statistics, are to be found in "The British Med. Journal," March 11, 1876, by Mr. Barwell.) W. T. B.

New Method of excising the Inferior Dental Nerve.—Sonnenburg gives a new method for the excision of this nerve in the "Deutsche Zeitschr. f. Chir.," B. 8, S. 93. The head hangs down, and an incision is made along and as far inward as the border of the inferior maxilla, commencing one and a half ctm. above the angle, and terminating at the place where the external maxillary artery crosses the border of the maxilla. The soft parts are now separated from the inner surface of the bone as far as the lingula. This may be done with a blunt instrument; a knife is necessary only for the division of the tendon of the internal pterygoid muscle. The nerve may now be felt with the fingers in the wound, which is two and a half to three ctm. deep. The former may be drawn forward by the aid of a blunt hook, which is guided with a finger as far as the lingula, and then somewhat farther up toward the jaw and in toward the mucous membrane of the mouth; in this way the artery, which lies nearer the maxilla, is avoided. After drawing the nerve forward, its peripheral and then its central portion is divided. This method has been advantageously employed by Lücke. It is superior to the methods previously employed, in consequence of the slight extent of the lesion, the favorable position of the wound, and the possibility of making a pretty considerable excision; besides, the operation is easy to perform.—"Hospitals-tidende," June, 1878. G. R. C.

Usefulness of the Limb after Excision of the Hip-Joint.—Elben ("Inaug.-Dissert.," Würzburg, 1878) has analyzed 338 cases in which this operation was done for "carious coxitis." Of these, 184 died, 75 did not remain under observation, and in 35 no information as to the use of the limb was given. In 94 these points were recorded, but in only 61 with sufficient detail. Of the latter, 41 were able to walk without apparatus, 15 depended on it, and 5 had no use of the limb at all.—"Centralblatt f. Chirurgie," 2, 1879. W. T. B.

Colotomy; 262 Cases.—These statistics have been compiled by Van Erckelens ("Arch. für klin. Chir.," xxiii., 1, p. 41), in order to compare the results of different operations. Of Amussat's method, there were 165 cases with 63 deaths; of Littré's, 84 cases with 39 deaths; 13 cases in which the method was not ascertained gave 6 deaths. Indications were carcinoma in 10, stricture in 49, atresia in 44, obstruction in 33, and fistulæ in 16 cases. In but few instances was death the direct result of the operation. The opening of the peritoneal cavity in Littré's method has few disadvantages compared with the greater extent of the wound in Amussat's, which predisposes to abscesses and erysipelas. Littré's operation is much easier, the difficulty of recognizing the colon and the liability to wound neighboring tissues being great in Amussat's operation. The situation of the artificial anus in the former is far more convenient than in the latter. For these reasons the writer gives the preference to Littré's method.—"Centralblatt f. Chirurgie," 1, 1879. W. T. B.

Treatment of Epididymitis with the Elastic Bandage.—The customary pressure treatment of epididymal tumors with adhesive plaster straps is a complicated process, not a pleasant task for the physician, is exceedingly painful to the patient, often does not fit well, and lastly, requires frequent changing. These drawbacks are avoided by the method suggested by Dr. Neumann, namely, by the employment of a continuous soft rubber band about one inch in breadth. The testicle is first covered with wadding, and the envelopment commenced with the usual first circular tour. The pain should not be considerable at first, as, from the continuous pressure, it afterward increases. The advantages of this dressing are: 1. It accommodates itself comfortably to the parts. 2. The pain is not considerable, for the application need not be made tight; its elasticity, and the continuous pressure, amply compensate for the tight compression necessary when the plaster dressing is used. 3. The dressing need not be changed if well applied at first, as it follows the diminution of the tumor, and remains in close apposition. Several cases treated in this manner by the author were cured in from four to six days. E. F.

Radical Operation for Herniæ.—The safety from severe reaction, and from so-called accidental traumatic complications, offered by the employment of strict antiseptic measures, has given rise to a large number of new operative procedures, which would formerly have been condemned as foolhardy. This applies especially to the radical operations for hernia, with which Dr. M. Schede has occupied himself for some time past. The following case is reported: A strong, healthy laborer, forty-six years of age, suffered from double internal inguinal herniæ. The right was easily reducible, the left only partly reducible, probably from adhesions. Both rings were sufficiently wide to admit three fingers, and the ruptures could not be retained by trusses, the patient being thus unable to work. The patient insisting on some radical operation, the author followed the ancient method (recently revived by Nussbaum) of excising the sac with ligature of the neck of the sac. The sac was exposed, dissected out, and opened. After reducing the hernia, the sac was pulled well forward, and the neck of the sac high up ligated with catgut. The sac was then cut off close to the ligature, and the stump disappeared in the canal. As the entire operation was easily and rapidly performed without much injury to the tissues, the wound was tightly sewed up without leaving a drainage tube. Lister's dressing was employed. Slight elevations of temperature for two days. Union by first intention. The wound definitely healed on the eighth day. The patient left his bed two days later. Altogether, three dressings were applied.—"Centralblatt für Chirurgie." E. F.

Treatment of Epididymitis.—Professor Zeissl, of Vienna, after a thorough trial of the method of Professor Hourod, of Lyons, states ("Allgemeine med. Zeitung," No. 46) that he prefers it to all the other methods he has employed. He treats all stages of the disease in the following manner: The scrotum is first enveloped in one or two thicknesses of wadding; over this is applied a square piece of India-rubber sheeting, through a hole in which the penis is passed. A suspensory is then adapted so as to support the testicles as immovably as possible. The patient is able to go about and attend to his affairs without pain or inconvenience, and the apparatus may be allowed to remain for a week. The perspiration of the scrotum is not interfered with. This is regarded as very beneficial.—"Gazz. Med. Ital. Venete." No. 50, 1878. G. R. C.

New Method of Treating Burns.—Dr. Winternitz has proposed a new treatment for burns. The injured part, be it a burn of the first, second, or third degree, is covered with a piece of very fine muslin, care being taken to avoid folds. Above this first stratum, which should not be removed, cold compresses are laid; the latter are to be renewed with greater or less frequency, as circumstances may require. A constant temperature may also be maintained by the aid of an irrigation tube. The pain is thus rapidly relieved, the parts protected from irritation, and recovery greatly accelerated. Clinical observations have demonstrated the superiority of this method of treatment.—"Giorn. Ital. delle Scienze Med." and "Gazz. Med. Ital. Lombardia," No. 50, 1878. G. R. C.

THEORY AND PRACTICE.

On Acute Myelitis.—Troust and Joffroy report the following case: A previously healthy man, fifty-eight years old, had one day in December remained near a hot stove, and had changed the very high temperature for a very cold one by suddenly passing into the open air. In carrying a heavy load on his back he fell, and was unable to rise again. There was no loss of consciousness, nor could any injury be found along the spine. All four extremities were paralyzed, but especially on the left side; there was paralysis of the bladder from the beginning; bed-sores appeared, and death occurred in three weeks. Moderate atrophy of the left lower extremity existed. The autopsy revealed myelitic softening of the cord in the cervical swelling, extending downward a few centimetres, chiefly affecting the gray substance (more so on the left side), but also the white substance. Histological examination showed the participation of all elements in the process: nerve-cells and fibers, connective tissue and vessels. According to the authors, the characteristics of acute inflammation of a nerve-fiber in the cord consists in a hypertrophy of the axis-cylinder, while the ganglion-cell may be hypertrophied or atrophied (showing itself especially by abundant pigment infiltration). Increase of neuroglia-cells is found less in the white, but rather predominates in the gray substance. Acute myelitis is therefore a parenchymatous, as also an interstitial inflammation. The most important feature of the case is, that formerly an unnecessary importance was attached to the patient's fall, and the resulting "commotion" of the cord. The sudden onset, simulating hæmorrhage into the cord, is generally only the first symptom of inflammation. The majority of paraplegias which appear under apoplectiform symptoms must be classed with acute myelitis. The falling down is not the cause, but only the first symptom of inflammation. E. F.

Inhalation of Bromine Vapor in Croup.—Dr. Jaeger, of Ragaz, Switzerland, recommends the following treatment for croup. From a half to one teaspoonful of Schuezt's solution of bromine (iodide of bromine, bromide of potassium, āā 30–50 centigrammes, water 150 grammes) is to be poured on a sponge in a proper receptacle, and the vapor inspired at intervals of half an hour or an hour. At the same time the neck may be covered with ice compresses. The author also employed this treatment advantageously in a case of croupous bronchitis occurring in a lady twenty-nine years of age.—"Schweiz. Corr. Bl." and "Ugeskritt for Laeger," No. 14, 1878. G. R. C.

Unilateral Contraction of the Heart.—In a case of relative insufficiency of the mitral and tricuspid valves, Dr. Kussmaul noticed that the right ventricle contracted independently of the left. Simultaneously with the impulse of the apex, there was a radial and venous pulse; that is, the right ventricle contracted again, after having contracted with the left ventricle, and independently from the latter. The phenomena of auscultation and the curves obtained by tracing proved this isolated contraction. This phenomenon was manifest after the signs of the compensation no longer existed; with the reappearance of the latter the venous pulse ceased to be detected in the neck. The author believes that this condition constitutes a grave accident in the valvular alteration.—"Nice Médicale," and "Gazz. Med. Ital. Lombardia," No. 42, 1878. G. R. C.

Miscellany.

Convention of American Colleges.—At the meeting of the American "Medical College Association," held in Buffalo, N. Y., June, 1878, Professor S. D. Gross, a delegate from Jefferson Medical College, of Philadelphia, offered the following preamble and resolutions:

Whereas, It is eminently desirable that the medical schools of this country should adopt a uniform system of instruction of a grade fully in accord with the requirements of the age in other branches of study, and with the practice of the medical institutions of Europe; and

Whereas, All the efforts to bring about such a change on the part of the American Medical Association, of the Association of Medical Teachers assembled at Cincinnati in 1867, and at Washington in 1869, and of different State medical societies, have signally failed; and

Whereas, The present time seems to be peculiarly favorable for taking strong ground upon the subject, inasmuch as it is now attracting general attention throughout the United States; therefore,

Resolved, That this Association respectfully and earnestly request that the regularly organized and accredited medical schools of the United States hold at their earliest convenience a meeting for the purpose of adopting some definite and final action upon a subject of such vital importance to the dignity, character, and usefulness of the profession, and the welfare of the American people.

Resolved, That in order to impart proper efficiency to this plan, each and every college be requested to send two delegates, consisting of one member of each Board of Trustees and of one member of each Faculty, with full power to act for their respective institutions.

Resolved, That the medical and secular press throughout the United States be respectfully requested to lend their aid in the dissemination and discussion of these preambles and resolutions, in order to place the whole matter of medical education prominently before the profession and the people.

Resolved, That a copy of these preambles and resolutions, signed by the President and Secretary of this Association, be transmitted to the officers of every regularly constituted medical college in the United States, with a request to hold the contemplated meeting at Washington City, or at some other central point, on the first Wednesday in September next, or as soon thereafter as possible.

Professor T. G. Richardson moved that the time of the proposed meeting be fixed at the Friday preceding the meeting of the American Medical Association, and that the place be designated by the President of this Association. This amendment was adopted, and the preamble and resolutions as amended were adopted.

In compliance with this action of the American Medical College Association, its Acting President, Professor N. S. Davis, has designated *Atlanta, Ga.*, as the *place* of the proposed convention, while the aforementioned action of the Association has fixed the *time* at 10 A. M. Friday, May 2, 1879. It is earnestly hoped that delegates from all "regularly organized and accredited medical schools" in the United States will promptly meet at the above designated time and place. That the action of the convention may be definite, it is desired that each college send two delegates, with full power to act for their respective institutions—one of these delegates to be selected from the Board of Trustees and one from the Faculty.

In general terms, the *object* of the convention is to adopt some "uniform system of instruction more in harmony with the requirements of the age." Among the questions appropriate for discussion and decision may be mentioned, "Shall all the colleges require attendance upon three regular courses of lectures during three separate years ere admitting students to become candidates for the degree of M. D.?"

It is desired that those colleges which decide to attend the aforesaid convention by delegates will send notice to that effect to the Secretary at any time previous to April 25th.

To avoid misconception, let it be distinctly noticed that, although this convention is called by the "American Medical College Association," it is entirely distinct from that body. When assembled, the convention will elect its own officers and adopt its own methods for transacting its business in pursuance with the object of the call.

Signed, NATHAN S. DAVIS, M. D.,
Acting President of the American Medical
College Association.
LEARTUS CONNOR, M. D.,
Secretary, Detroit, Mich.

Appointments, Honors, etc.—Dr. R. H. Fitz has been appointed Professor of Pathological Anatomy in the medical department of Harvard University, in place of the late Dr. J. B. S. Jackson. Dr. H. H. A. Beach has received the appointment of Visiting Surgeon of the Massachusetts General Hospital, and Dr. W. S. Bigelow succeeds him as Surgeon to Out-patients. The Professorship of Obstetrics and Gynæcology in Rush College has been divided. Professor De Laskie Miller retains Obstetrics, while Professor William H. Byford takes the new department of Gynæcology. Professor Alfred Stillé has resigned the chair of Theory and Practice of Medicine, and of Clinical Medicine, in the University of Pennsylvania. Dr. W. W. Van Valzah has been appointed one of the Attending Physicians to Jefferson Medical College Hospital, in the place of Dr. John B. Roberts, who resigned to take charge of the Philadelphia School of Anatomy. It is said that Congress has made an appropriation for the first two volumes of the "Medical Index," and that Dr. Billings can now proceed with its publication. Dr. Charles H. Todd, of Owensboro, has been elected President of the Kentucky State Medical Society. Dr. James Nevins Hyde has been made Professor of Dermatology and Venereal Diseases in Rush Medical College, Chicago; and Dr. John E. Owens Professor of Orthopedic Surgery in the same institution. Both chairs are new. Dr. John J. Reese has been appointed Visiting Physician to Girard College, Philadelphia, in place of the late Dr. Biddle.

Dr. Braxton Hicks has been elected President of the Hunterian Society for the ensuing year. A Professor of Pathology is to be appointed in the University of Cambridge, England. Mr. Jonathan Hutchinson has been elected President of the Pathological Society of London for the year 1879. Professor Balfour has resigned his chair in the University of Edinburgh. MM. Fauvel and N. Guéneau de Mussy are retired, on account of age, from the Hôtel-Dieu. Their successors are MM. Empis and Moutard-Martin.

The College of Physicians and Surgeons.—The seventy-second annual commencement of this College was held at Steinway Hall, February 28th. The degree of Doctor of Medicine was conferred upon the ninety-five graduates by Professor Alonzo Clark, M. D., President of the Medical Faculty. The announcement was made by Professor T. M. Markoe that none of the essays received were sufficiently meritorious to receive the Stevens triennial prize. The subjects for that prize for 1882 were "Lesions of the Brain" and "Diphtheria in its Relations to Membranous Croup." The prize is open to universal competition. The Joseph Mather Smith prize of $100, open to the alumni, was awarded to Dr. William O. Moore, of the class of 1872. The first Harsen prize of $150, for the best report of clinical studies in the New York Hospital for any four consecutive months in the year, was awarded to Frederick M. Brown; the second, $50, to C. Hart Merriam; and the third, $25, to Wisner R. Townsend. Professor W. H. Draper announced that six essays had been received for the alumni prize of $500, but no award had been made. The prize will remain open for competition until 1880. Professor John G. Curtis then announced three prizes of $100, $50, and $25, respectively, for the best public examinations sustained among ten members of the graduating class entitled by efficiency to compete therefor. The first prize was awarded to John Ward Hopper, A. B., of New Jersey; the second, to John Bernard McMahon, A. M., of New York; the third, to Theodore Wellington Corwin, of New Jersey. Three prizes of $500, $300, and $200, respectively, will be awarded next year from the Jacob Harsen prize fund to three of the ten members of the graduating class who are entitled by high proficiency to enter for competition. The valedictory address was delivered by Dr. William F. Wright. The address to the graduates was delivered by the Rev. Roswell D. Hitchcock, D. D.

Medical Department of the University of the City of New York.—The thirty-eighth annual commencement of this college was held in the Academy of Music, February 18th. Chancellor Crosby conferred the degree of Doctor in Medicine upon the two hundred and five members of the graduating class, after which he delivered the address to the graduating class. The Mott prize medals were awarded as follows: For the best dried anatomical preparation, gold medal, to W. R. Winters; for the second best, silver medal, to Gregory Iskiyan. To E.

R. Boden was awarded a bronze medal for the best report of a surgical clinic. For the best examination in pathology and practical medicine, the prize was awarded to J. C. McCoy. For the best examination in materia medica and therapeutics, the prize was awarded to E. E. Wallace. For the best examination in ophthalmology and otology, the prize was awarded to William T. Smith. To W. J. Herriman was awarded the prize for the best examination in obstetrics, and to W. Edwin Walker for the best examination on diseases of the nervous system.

The New York Hospital Library.—The Librarian, Dr. J. L. Vandervoort, calls the attention of the medical profession, by means of a circular, to the advantages offered by this large collection of books and journals, and says:

The Library, from its foundation in 1796 until a comparatively recent period, depended for its increase upon valuable donations granted from time to time by the Governors of the Hospital and the liberality of several members of the medical profession. Of late years, however, liberal appropriations have been made by the Governors for its support and growth, and it now contains a choice collection of foreign and domestic periodicals, transactions, and hospital reports, and many costly illustrated works rarely found in any private library.

Recent Medical Graduates.—The following is a partial list of recent graduates: University of the City of New York, 205; Jefferson Medical College, 196; Bellevue Hospital Medical College, 165; Rush Medical College, Chicago, 122; Medical College of Ohio, 101; College of Physicians and Surgeons, New York, 95; University of Pennsylvania, 91; Columbus Medical College, Ohio, 51; Miami Medical College, Ohio, 35; Cincinnati College of Medicine and Surgery, 32; Woman's Medical College, Philadelphia, 20; University of Iowa, 15; Yale Medical School, 8; Woman's Medical College, Chicago, 5.

The Dermatophone.—Professor Hueter, of Greifswald, has invented an instrument by which, it is claimed, the rush of blood through the capillaries of the skin is rendered audible. The dermatophone consists of a flexible stethoscope, with a plug to fit the ear, and a membrane stretched over the end applied to the skin. With the same instrument the sounds of muscular contraction, tendinous extension, and the vibration of the long bones can be easily heard. A brief description of the invention is given in the "Times and Gazette," taken from the "Centralblatt med. Wiss.," Nos. 51, 52, 1879.

Bellevue Hospital Medical College.—The eighteenth annual commencement of this College was held in the Academy of Music, February 27th. The President of the Faculty, Professor Isaac E. Taylor, M. D., conferred the degree of Doctor in Medicine upon the one hundred and sixty-five members of the graduating class. The prize of $200, which was offered by Professor Lewis A. Sayre for the best essay on "The Pathology and Etiology of Pott's Disease," was awarded to Dr. Seth W. Williams, of New Hampshire. The address to the graduates was delivered by the Hon. Richard O'Gorman.

The First Home Hospital.—The Home Hospital Association of London has established its first hospital for paying patients. The object of this Association is to secure good accommodation for a class of patients who would otherwise be compelled either to put up with hotels or boarding-houses, or to resort to the public hospitals.

The "Index Medicus."—The first and second numbers of this publication fully justify the claims made for it, and leave us in wonder at the herculean task the compilers have undertaken. It is evident, however, that they intend to do their work thoroughly. The publishers present it in their handsomest style.

Woman's Hospital of the State of Illinois.—Dr. A. Reeves Jackson has resigned his position as surgeon to this hospital, as have his assistant surgeons also, and the consulting staff. Drs. Byford, Nelson, Merriman, Roler, Sawyer, and Flood have been appointed to the vacant places.

"Neurological Contributions."—Dr. W. A. Hammond, assisted by Dr. W. J. Morton, announce the issue, under the above title, of a quarterly journal of 96 pages, devoted to diseases of the mind and nervous system. G. P. Putnam's Sons will be the publishers.

The American Medical Association.—The thirteenth annual meeting of this Association will be held in Atlanta, Georgia, on the first Tuesday in May, 1879.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from February 14 to March 13, 1879.

Town, F. L., Major and Surgeon.—To accompany the first detachment of recruits to the Pacific Coast, and, upon completion of this duty, to report in person to the Commanding General Department of the Columbia for assignment to duty. S. O. 58, A. G. O., March 11, 1879.

Tilton, H. R., Major and Surgeon.—To report to Commanding General Department of the Missouri for assignment to duty. S. O. 58, C. S., A. G. O.

Notson, William M., Major and Surgeon.—To report in person to the President of the Army Medical Board, now in session in New York City, for temporary duty as a member of the Board. S. O. 38, A. G. O., February 15, 1879.

Kinsman, J. H., Captain and Assistant Surgeon.—His extension of leave of absence further extended one month. S. O. 36, A. G. O., February 13, 1879.

De Witt, C., Captain and Assistant Surgeon.—To proceed to New York City, report in person to President of Army Medical Board for examination for promotion, and, upon completion of examination, rejoin his proper station. S. O. 58, C. S., A. G. O.

Lauderdale, J. V., Captain and Assistant Surgeon.—Assigned to duty at Mount Vernon Barracks, Ala. S. O. 40, Department of the South, March 6, 1879.

Fitzgerald, J. A., Captain and Assistant Surgeon.—Granted leave of absence for four months on surgeon's certificate of disability, to take effect March 1, 1879. S. O. 42, A. G. O., February 20, 1879.

De Loffre, A. A., First Lieutenant and Assistant Surgeon.—To report in person to Commanding General Department of the South for assignment to duty. S. O. 58, C. S., A. G. O.

PORTER, J. Y., First Lieutenant and Assistant Surgeon.—Granted leave of absence for one month from 1st proximo. S. O. 41, Department of the South, March 7, 1879.

BIART, V., First Lieutenant and Assistant Surgeon.—To accompany Companies A, C, D, G, and K, Twenty-third Infantry, to their new station (a point on the south side of the north fork of the Canadian), and remain on duty with them as medical officer of the new post. S. O. 32, Department of the Missouri, February 15, 1879.

POWELL, JUNIUS LEVERT.—Appointed Assistant Surgeon U. S. Army, with the rank of First Lieutenant, to date from June 6, 1878, having successfully passed the examination before the Army Medical Board in session in New York City. To report in person to Commanding General Department of Texas for assignment to duty. S. O. 58, C. S., A. G. O.

Obituary.

DR. EMILE CHAUFFARD, Professor of General Pathology at the Paris Faculty and Medical Inspector-General of the University, died in Paris, February 6th, aged fifty-five years.

THOMAS R. BROWN, M. D., of Baltimore, Maryland, Professor in the College of Physicians and Surgeons and President of the Baltimore Medical and Surgical Society, died January 27th.

DR. JOHN HUGH MCQUILLEN, the Dean of the Faculty of the Philadelphia Dental College, died suddenly in that city March 3d.

DR. JOHN MACROBIN, Emeritus Professor of the Theory and Practice of Medicine in the University of Aberdeen, is dead.

DR. LUIGI CINISELLI died recently, aged seventy-five years. He was many years chief surgeon of the hospital at Cremona Italy. He gave great attention to the electrolytic treatment of aneurism, and was the author of many papers on this and other surgical subjects.

DR. JOHN M. WOODWORTH, Supervising Surgeon-General Marine Hospital Service, died March 14th.

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Original Communications.

ART. I.—*On the Nature of the Poison of Yellow Fever, and its Prevention.* By Dr. H. D. SCHMIDT, Pathologist of the Charity Hospital of New Orleans.

As long as yellow fever has been known to the civilized world, a controversy has existed among medical men, especially among those of prominent seafaring nations, as to whether this disease is communicable from individual to individual, either in a direct or indirect manner, or whether its cause exists uniformly throughout the air of the infected district, having access to all persons alike. In other words, the question was, and still is, whether yellow fever is a *contagious* or a purely *infectious* disease. Now, as far as I understand, the meaning which these terms imply is as follows: *Infection* signifies that the poison causing the disease is *not a product* of the animal organism which it infects, but, on the contrary, is a body or substance totally foreign to it—a body which, whether *animate* or *inanimate*, owes its existence to external causes, whatever they may be. The term *contagion*, on the other hand, implies that the active poison is *a product of the diseased organism itself*, emanating from the affected person or animal; and which, if entering the blood of a healthy individual, gives rise to all the symptoms and organic changes by which the original disease is characterized.

Now, it is obvious that an *infectious* poison, as, for example, the poison causing miasmatic fever, hardly ever exists limited to one particular spot or center, but is rather distributed throughout the whole air of the infected district, and affects many persons at the same time; while a *contagious* poison, being a product of the diseased organism itself, originally emanates from the affected person or animal, and extends its noxious influence by being inhaled or swallowed by other individuals in the vicinity. From this common center the disease spreads, either *directly* from individual to individual, or *indirectly* by adhering to surrounding objects, such as clothes, bedding, furniture, goods, etc., upon which it may be carried to distant places, and, as in the first instance, propagate itself by entering the system of other individuals.

From this explanation it will be seen that some poisons may, in entering the organism, give rise to certain diseases not communicable from individual to individual, and be therefore purely *infectious;* while others, producing communicable diseases, and being *contagious*, are at the same time *infectious*, as they must necessarily enter the blood of the individual before they can exert their noxious influence upon the organism and manifest their contagious nature.

Now, as regards the nature of the cause of infectious diseases, it may be twofold; that is, the poison may either exist in a *gaseous* form, such as the gases arising from decomposing vegetable or animal matters, or in the form of living organisms supposed to exist in the air, such as the minute *spores* of *fungi*, or the now famous *bacteria*, in this instance generally known as the *contagium vivum.* The poison of contagious diseases, on the other hand, being a product of the organism itself, must necessarily be of a *glandular* origin, that is, a product of a secreting cell.

As regards the relative nature of miasmatic and yellow fever, it can not be denied that there exists a certain analogy in their accompanying symptoms; and I must confess that at one time I was misled myself by this apparent analogy to regard the latter as a miasmatic disease of the utmost intensity, though there remained one of the most prominent phenomena, which I was unable to reconcile with this view. This phenomenon consists in the *immunity* from a second attack, peculiar, not alone to yellow fever, but to all other contagious diseases. Thus we find that in purely infectious diseases, such as the miasmatic fevers, one attack affords no protection from a second; while in contagious diseases, such as small-pox, one attack insures immunity from a second. This phenomenon alone shows, in a most striking manner, the difference existing in the nature of infectious and contagious diseases; and to this I will have occasion to refer again in the course of this essay.

As regards the particular nature of yellow fever, the physicians living and practicing in the yellow-fever zone, with others who have been writing on the subject, have always been divided into two parties, known, according to the particular view which they favored, as the *contagionists* and the *non-contagionists*. This distinct division, however, dates back to a time when the causes of disease were still less understood than they are at present, and when more attention was paid to the effects than to the nature of the poison producing the disease. In recent times a new theory has sprung up, which, *if true*, would render the cause of both infectious and contagious diseases quite easy of understanding to the medical practitioner. Unfortunately, however, the facts upon which it rests are so few as to inspire no hope that its truth will ever be established. Nevertheless, as this particular theory is so very convenient in explaining the cause of a number of diseases which are as yet not clearly understood, it has been favorably received by a number of medical men, though contrary to the numerous facts adduced to prove its futility. This is the now famous theory of the *contagium vivum*, or *germ-theory*, which, as recent proceedings appear to show, has adherents among the medical men of our city, for the reason, as a number of my professional friends have expressed it, that it was the *only* theory which is able to satisfactorily explain the cause of yellow fever. This germ-theory, however, while introducing itself into our midst, did not arrange itself on one or the other side of the old lines, "contagion" or "noncontagion," but, on the contrary, has been adopted, either in part or as a whole, by both parties, resulting in a number of different shades of theories of more or less unstable foundation. Thus, while some physicians behold the cause of yellow fever in some invisible, living, undefinable germ endemic to our soil, and accordingly are opposed to any kind of quarantine, others favor the most severe laws of quarantine, because they regard this invisible, living, and undefinable organism as of foreign birth, imported to our shores by ships from distant parts. There are still others who regard the cause of yellow fever as a tropical form of miasma, wafted from the tropical regions of this continent to our own shores by the winds. Besides these, other theories exist, differing in shade according to the particular view of the theorizer.

It must be obvious to every physician that such a number of contradictory theories must exert a most pernicious influence, not only upon a rational pathology and treatment of this disease, but, moreover, upon all rational measures devised for its prevention. And it is for the purpose of counteracting this influence that, before proceeding with the original subject, I deem it proper to briefly discuss the history of the so-called germ-theory and its bearing upon disease.

The so-called germ-theory, though not entirely of a recent date, nevertheless first assumed a definite form by the studies of J. M. Klob into the nature of cholera during the epidemics of the years 1865–'66 in Europe. Examining the stools of a number of cholera patients, and the intestinal contents of others who had died from this disease, he discovered a large number of very minute bodies adhering to the outer surface of the epithelial cells, together with others of an oblong form, some of which, more or less constricted in the middle, appeared to be composed of two segments. In the intestinal mucus, or in that of the cholera ejections, he also met with these bodies, collected in circumscribed masses in the form of so-called "colonies," imbedded in a homogeneous, gelatinous material. In certain parts of some of these colonies he observed a number of these minute bodies, liberated by the liquefaction of their gelatinous envelope, in active motion; while others, united in pairs, or adhering to each other in the form of shorter or longer rows or chains, remained motionless. In the same intestinal mucus he also found other colonies formed not by round, but oblong, rod-like bodies, either in pairs or, like the former, united into chains of different lengths.

From these observations Klob drew the conclusion that all these bodies represented but a single organism in its different phases of metamorphosis, and by further inquiry found them, especially the rod-like form, to correspond with the *Zoglœa termo* of Cohn, or *Bacterium termo* of Dujardin. Meeting, however, with no other vegetable organism in the ejections, but always with large numbers of these bacteria, he concluded that these forms of fungi, constantly met with in the alimentary canal of cholera patients, never attained a higher development in this locality.

From this it will be seen that these bodies represented the same organisms always met with in stale urine and other putrid substances, and formerly known to physicians under the name of "vibriones," though the knowledge of their true nature and development, and the prominent part which they play in the process of fermentation, belongs to recent times. Many years ago, in the beginning of my microscopical studies, while observing and examining these minute organisms, I little imagined that, at one day, they would occupy the prominent position which they have since assumed in the natural and pathological sciences. They were already known to Ehrenberg, who regarded them as animals, and classed them with the *infusoria;* but, when their nature was rendered doubtful, Haeckel placed them, about twelve years ago, in his newly established natural kingdom of the *Protista*, composed of a number of other organisms of doubtful origin. Naegeli, a distinguished German botanist, formed them into a separate order, which he named *Schizomycetes*, closely allied to the *Fungi.* In classing these organisms with the lower forms of fungi, however, a difficulty was encountered in the want of similarity regarding the precise mode of their reproduction, for while, with the exception of *Cryptococcus cerevisiæ*, or yeast-plant, in all fungi certain typical organs of reproduction are known to exist, none could be demonstrated in the *schizomycetes.*

For in the latter the only mode of multiplication observed consisted in a division of the minute rods in only one direction; while in the fungi, which are likewise represented by linearly arranged cells, the process of multiplication takes place by gemmation, not only in a straight line, but also by the formation of lateral branches. Finally, after having been studied and classified by other distinguished botanists, a second mode of reproduction was discovered in these organisms only a few years ago, and especially by means of artificial cultivation. This mode consists in the production of minute spores, appearing in the rods, after they have attained a higher development by further cultivation.

The strongest impulse, leading to a closer study of the nature and development of these organisms, proceeded perhaps from Professor H. Charlton Bastian, of London, by his proclamation of their *spontaneous* origin, giving rise to scientific disputes and controversies relating to the *spontaneous generation* of organized beings, which are still going on at present. The main subject of this controversy was the process of fermentation, or, in other words, the question whether organisms, always found associated with this process, were the primary cause or the resulting product. Bastian, in accepting the view of Liebig, who attributed the phenomenon of fermentation to certain chemical influences, associated with simultaneous molecular changes in the accompanying organisms themselves, defended at the same time his own theory of spontaneous generation; while, on the other hand, Pasteur, of Paris, showed by his experiments that no fermentation could take place in fermentable substances without these living organisms. And, as far as the different kinds of fermentation of non-living organic substances are concerned, Pasteur's assertions appear, thus far, to have proved true.

Nearly at the same time with Klob, E. Hallier, a professor of botany in Jena, had also made a number of microscopical examinations of cholera stools, and for some time agitated the medical world by the discoveries he claimed to have made, consisting in certain spherical and oblong vesicles or cysts, containing a number of minute yellowish and glistening cells or spores of different sizes, and also in empty collapsed vesicular membranes, with some of these spores adhering, and certain spherical balls, consisting of very minute roundish bodies held together by a homogeneous gelatinous substance. To these vesicles and balls Hallier applied the name of *Micrococcus*, the granules of which he found in large numbers adhering to the remains of food and epithelial cells. Almost the same results he obtained from other examinations of cholera stools and vomited matters sent to him from Elberfeld. With these he undertook, by certain methods, the cultivation of the fungous element they contained; and, after the lapse of several days, he really found an increase in the forms of micrococcus, cryptococcus, torula, and leptothrix. In some of these cultures only certain forms of fungi appeared, while in others other forms were observed, such as oïdium lactis, mucor racemosus, and also penicillium glaucum.

These examinations, made upon old material, could not have, as will be readily understood, any important bearing upon our knowledge of the cause of cholera, and for this reason could not but meet with much opposition and criticism on the part of other investigators. Nevertheless, Hallier drew from these observations the conclusion that those minute granules of micrococcus were able to give rise to various forms of fungi, and moreover, that the particular form of a fungus depended upon the particular material in which it was cultivated. Thus, from each species of fungus, micrococcus spores might be derived, which, according to the nourishment they received, would be developed into one or the other species of fungus.

Thus far, the whole question concerning the metamorphosis of one species of fungus into another would have remained botanical in its nature if Hallier had not extended the bearing of his observations to the field of medical science in asserting that all infectious diseases were caused by the presence of micrococcus spores penetrating into the capillaries of the human organism, in which they multiplied without ever being developed into a perfect form of fungus. Thus each form of micrococcus would give rise to a particular disease. The same theory he applied to the process of fermentation, in which, according to the nature of the fermentable substance, a different fungus was produced. The application of Hallier's theory to the causes of infectious diseases met with considerable opposition in Germany; and, being finally rejected, made room for the so-called "bacteria theory," which, though *apparently* supported by a few observed facts to be discussed hereafter, is still very far from being established as a truth applicable to all infectious diseases.

In the preceding pages I have already given a brief sketch of the history of the minute organisms called bacteria, vibrios, etc., and mentioned the important position which, by the prominent part they appear to play in the processes of fermentation, they occupied of late. In accordance with the importance they gained, their nature and their relations to organic substances have been studied more closely, leading to the discovery of a large number of new species, and rendering the field they occupy so extended as to form at present a special branch of study in natural history. They have also been subjected to new classifications, especially by Billroth and Cohn, too extensive to be followed by the physician. But, as in several instances some particular forms of bacteria have been found associated with some special pathological processes occurring within the animal body, and also with the different kinds of fermentation observed in fermentable substances, it will not be out of place to give a short sketch of a few species of these organisms which have hitherto been observed to take a part in these processes.

The most simple form in which bacteria are met with is that of minute granules, designated by Professor Cohn the *sphæro-bacteria.* These are identical with the *micrococci* of Hallier, representing very minute granules, measuring from $\frac{1}{30000}$ to $\frac{1}{35000}$ of an inch in diameter, and are often found aggregated in colonies, or forming bead-like chains. They are motionless, and are sometimes found in putrifying substances in company with other bacteria, and have also been considered identical with those granules found in the vaccine lymph.

The next group is represented by *bacterium termo* and *b. lineola.* The first presents the form of a dumb-bell, has a slow vacillating motion, and measures from $\frac{1}{9000}$ to $\frac{1}{12000}$

of an inch in length; it is always found associated with putrefactive fermentation. The other is somewhat larger, and exhibits more rapid movements.

The members of the third group are distinguished from the true bacteria by adhering to each other in the form of chains or "linked rods." It consists of *Bacillus*, representing a transversely lined filament, and of *Vibrio*, appearing as a cylindrical and curved filament. There are three species of *bacillus*. The first is *b. subtilis*, a slender thread, about $\frac{1}{500}$ of an inch in length, and exhibiting a pausing motion. The second, *b. anthracis*, or *bacterium carbuncolare*, represents a motionless, oblong, and highly refractive body, found in the blood of animals affected with splenic fever, and measures from $\frac{1}{10000}$ to $\frac{1}{2000}$ of an inch in length. The third is *b. ulna*, a stiff filament of $\frac{1}{650}$ of an inch in length, and of greater thickness than *b. subtilis.* The *vibrios* are distinguished from the preceding forms by their rotary motion. The *v. regula* represents a flexible thread, $\frac{1}{2500}$ to $\frac{1}{1200}$ of an inch in length, distinguished by one or two slight curves and its slow rotations. The other, *v. serpens*, measuring $\frac{1}{2000}$ of an inch in length, is thinner than the preceding, and distinguished by the greater number and regularity of its curves and its more rapid serpentine motion.

The fourth group, represented by the species *spirilla* and *spirochæ*, are distinguished by the greater regularity and closeness of the curves of the spiral and their uniform corkscrew motion. Spirilla is found, as we shall see, in the blood of patients affected with relapsing fever.

The above sketch of the history of the germ-theory will now enable us better to answer the question, whether this theory may be properly applied to elucidate the cause of yellow fever. Let us, then, first take a glance at those diseases in which bacteria have really been found in the blood of the affected individuals. The number of these diseases, notwithstanding the numerous microscopical examinations made of the blood in other diseases, amounts to only four. They are: splenic fever, septicæmia, typhus recurrens or relapsing fever, and pneumo-enteritis of the pig. The first and last of these diseases are confined to our domestic animals, though splenic fever is also communicable to man.

In examining these diseases separately, we shall begin with *splenic fever*, the disease in which bacteria were first discovered in the blood of the affected individuals. It is chiefly met with in the sheep, cattle, hogs, and horses, but may also be communicated by inoculation to smaller animals, as the rabbit, guinea-pig, mouse, etc., and even to man. It has frequently appeared in the form of an epidemic, spreading over certain districts, but is mostly confined to certain rural *localities*, or even particular *pastures* or *stables*. The animals affected with the disease usually die one, two, or three days after the appearance of the first symptoms. One particular form of the disease, called the "apoplectic," is, however, observed, which proves fatal a few hours after its appearance. Death is accompanied by dyspnœa and cyanosis; and the chief anatomical changes revealed by the autopsy are enlargement of the spleen, a laky, viscid, dark-colored blood, numerous ecchymoses in different organs, especially in the heart, hæmorrhagic infiltrations into the areolar tissues, and also hæmorrhages into the alimentary canal. The particular phenomenon, however, now looked upon as pathognomonic of the disease, and bearing directly upon our subject, consists of the *bacteria* almost invariably found in the blood of the affected animals, where they were first discovered by Pollender more than twenty years ago—a discovery soon after confirmed by the more extensive researches of Brauell, Davaine, and Colin. These organisms, the development of which has of late years been closely studied by Cohn, Koch, and Ewart, belong to the species of *bacillus anthracis* above mentioned, a rod-like motionless bacterium, which by cultivation lengthens into a filament, in which a number of very minute bright spores appear. These, when liberated by a disintegration of the filament, develop into other rods, and, when introduced into the blood of an animal, rapidly increase by transverse fission. For some years, however, the theory that these bacteria represented the primary cause of splenic fever met with considerable opposition. Thus, when, in 1869, the French Government appointed a commission, consisting of Bouley, Teilhard, Lathérisse, Maret, Tournadre, Bonnet, Baillot, Chauveau, Richard, Felgéres, Messonier, and Sanson, to investigate the cause of this disease, Bouley, the chairman, reported as follows: 1. That the disease will be produced by inoculation, even with blood containing *no* bacteria; 2. That the anthrax blood, containing bacteria, loses its virulent properties by desiccation, without regaining them by the addition of water, though the bacteria may still be present; 3. The blood of rabbits dying from splenic fever always contained bacteria, whether the disease had been produced by inoculation with blood containing bacteria, or with blood containing none of these organisms. Finally, experiments made by inoculating calves and sheep showed that bacteria were not always present in the blood, and that the blood proved equally virulent, whether containing bacteria or not.

From these observations Sanson drew the conclusion that splenic fever depended upon a putrid decomposition of the blood—a view which was refuted by Davaine.

The presence of bacteria in the blood of animals affected with splenic fever is now generally regarded as a pathognomonic symptom of the disease. Still a number of cases have equally been observed, in which the bacteria were absent in the beginning of the disease; therefore the question remains still open, whether these organisms themselves are the direct cause of the disease, or whether they are only the carriers of the infectious poisons. This question will probably not be solved until the origin of the bacteria is positively known—that is, until it has been decided whether the affected animals receive them from the air they breathe or from the water they drink, or whether they are contained in the ground of the infected pasture. As regards their presence in the air, I have not met with any such statement in the literature of splenic fever within my reach; though, regarding the water, Bender a number of years ago suggested that these organisms might be contained in the green slime frequently covering, not only the wooden troughs, but also the buckets or other wooden vessels containing the drinking water of animals. Bollinger, who closely studied the epizoötic of splenic fever prevailing a few years ago among the domestic animals of the Bavarian

Alps, states that in the Alps, as in all other places where splenic fever prevails, the condition of the ground plays a prominent part, inasmuch as the swampy and moist terrain of the alpine pastures, like that of the valleys, favors the conservation and reproduction of the infectious poison, and that splenic fever never arises primarily from the ground, but is only produced when the latter has been previously impregnated with the poison, and that the so-called miasmatic origin of splenic fever can not be proved. He thinks that the dung of the diseased animals plays a more important part than is generally thought.

For the purpose of ascertaining whether the infectious properties resided in the serum of the blood or in the bacteria themselves, numerous experiments have been made, but, as has often occurred before in the solution of scientific problems, while the results of a number of these experiments appeared to speak in favor of the germ-theory, those of others showed that the poisonous properties in reality resided in the fluid containing the bacteria. And as it would be impracticable to recite in this place the details of the various experiments made in regard to this question, I will only mention that, whenever the application of the germ-theory to splenic fever seemed to have been proved by the experiments of one investigator, its fallacy was usually exposed soon after by those of another.

The next disease in which bacteria have sometimes been met with in the blood is *Septicæmia*, representing a depraved condition of the system, and observed in connection with grave surgical injuries, such as extensive wounds, etc., or following severe operations, a condition characterized by all the symptoms of blood-poisoning. The anatomical changes observed after death are as follows: Early decomposition, skin of a dirty yellowish tint, with numerous livid spots due to local congestion. Blood of a dark color, fluid, or imperfectly coagulated. Small extravasations found in the heart, also small abscesses surrounded by a zone of congestion or hæmorrhage. The lining membrane of the heart and the aorta is more or less stained by imbibition of the coloring matter of the blood. The lungs are congested and friable, containing metastatic abscesses; these are also found in the liver, surrounded by a zone of congestion or hæmorrhage. The spleen is usually large and soft, very friable and pulpy; the kidneys are congested.

In surgery, septicæmia is identical with pyæmia, a condition which for a long time was supposed to depend upon the absorption of pus from the surface of the wound into the blood. Though it remains doubtful whether healthy pus could produce this condition, it appears to be generally accepted that the infectious poison enters the blood by the way of the wound. The disputed point, therefore, is whether the septicæmic phenomena are due to the absorption of a specific organic poison arising from putrid changes in the pus secreted from the granulating surface of the wound, and reabsorbed into the blood, or to the bacteria contained in the surrounding air, finding their way into the blood through the surface of the wound. The celebrated antiseptic dressing of Professor Lister is based upon the assumption that the bacteria, settling upon the wound, cause a putrefactive fermentation in its secretions, which, if absorbed into the blood, give rise to the specific symptoms characterizing septicæmia.

The idea that septicæmia depended upon the presence of a putrid poison in the blood gave rise to very numerous experiments made upon animals for the purposes of artificially producing this condition by the inoculation of various putrid substances, such as putrifying blood, muscle, etc.; and, as was expected, these experiments led to the same results in producing the same or similar symptoms and pathological changes in the affected animals. When, however, the blood of these animals was used to inoculate others, the experiment was followed by graver symptoms, and death, showing that the putrid poison had gained in virulence; and by continuing the experiment it was finally found that, by successive inoculation, *the intensity of the poison increased with each animal through which it passed.* As the same result was obtained by every experimenter, the phenomenon is now regarded as a settled fact. The virulence of the poison thus produced is so intense as to kill a rabbit with one trillionth part of a drop. The pathological changes found in animals killed with septicæmic blood are similar to those of septicæmia in man. They are: peritonitis, pleuritis, enlargement of the spleen, pneumonia, hyperæmia of the kidneys, jaundice, and hyperæmia of the intestines. But, while putrifying blood is always found full of true bacteria, they are seldom met with in septicæmic blood; the only organisms found here are large numbers of minute granules of a doubtful nature, appearing with the first symptoms of septicæmia. In fact, all symptoms of septicæmia may be observed without the appearance of bacteria in the blood.

The third and most interesting of these diseases is the *Typhus recurrens*, or so-called "relapsing fever," a very contagious and epidemic disease, principally occurring in Germany and Russia, and accompanied by affections of the spleen, liver, intestinal glands, kidneys, and hæmorrhages in different organs. In the fever the pyrexia, lasting from two to six days, is followed by an apyrexia of eight or nine days; then follows a second paroxysm or relapse, lasting four or five days, and terminating in a profuse perspiration. Some cases terminate after the second paroxysm, though in many others other paroxysms are observed to occur. But the characteristic phenomenon of this disease consists in the appearance of minute filamentary organisms in the blood of the patient, first discovered several years ago by Dr. O. Obermeier, of Berlin. These organisms, called *spirillæ*, represent exceedingly fine and delicate filaments, from $\frac{1}{100}$ to $\frac{5}{100}$ mm., or more, in length, appearing and moving very rapidly in the form of close spirals, similar to a corkscrew. They are only observed in the blood shortly before and during the period of pyrexia, while during the apyrexia or intermission they are entirely absent; neither can they be discovered in any of the secretions of the body. The singular relation existing between the appearance of these spirillæ inthe blood and the paroxysm of the fever naturally suggests the idea that they probably are the true cause of the latter; and this idea becomes strengthened by the fact that the disease can be transmitted from individual to individual by inoculation with the blood, provided it is taken from the patient during the period of pyrexia. The explanation given to the singular appearance and disappearance of these organisms in the blood of relapsing fever patients is that, while the spirillæ die at the end of each paroxysm of fever, they leave their spores behind, from which, during the apyrexial period, a new brood arises, though these spores have as yet not been discovered.

The last disease in which bacteria have been found in the blood of the diseased animals is *infectious pneumo-enteritis* of the pig, as it has been termed by Dr. E. Klein, who investigated it during the past year. The description of the interesting experiments which he made in relation to the cause of this disease will be found in the April number, 1878, of the "Quarterly Journal of Microscopical Science." The anatomical changes met with in this disease are similar to those already mentioned in connection with splenic fever, consisting principally of lobular pneumonia, ulcerations of the mucous membrane of the intestines, and inflammation of the serous membranes, accompanied by an exudation of lymph in the serous cavity; and, furthermore, of hæmorrhagic patches, found in the lung and serous membranes in the heart, the mucous membranes of the intestines, the liver, spleen, etc. The results of these experiments showed: 1, that the fresh blood of diseased animals does not, as a rule, contain the virus, as it fails to produce the disease when introduced into a healthy animal; 2, that fluid as well as solid lymph of the diseased peritonæum contains the virus in a very active state; 3, that parts of the diseased lung, ulcerated intestine, and diseased spleen, contain the virus in a very active state; a frothy, blood-containing matter, found in the trachea and bronchi, also possesses infectious properties, showing that the breath of the diseased animal is charged with poison; 4, that infection is produced by cohabitation with a diseased animal, or by keeping healthy animals in a place whence a diseased animal had been removed.

By some other experiments, Dr. Klein furthermore showed that the virus may be cultivated artificially, outside the body of an animal, as has been successfully done by Dr. Koch in splenic fever.

The cultivation of the virus consisted in taking a minute portion of the lymph, and inoculating a drop of fresh aqueous humor of a rabbit, which, being placed upon a glass slip and arranged in such a manner as to prevent the access of air, was kept in the incubator for twenty-four hours at a temperature of 33° to 34° C. With a minute portion of this fluid, another drop of aqueous humor was inoculated, and treated in the same manner; and from the latter a third, representing the third generation. Two animals, inoculated with this matter, were affected with the disease.

In a similar manner, the virus was cultivated from a minute portion of solid lymph of the peritonæum of a diseased animal, and the cultivation carried to the fourth generation. Two animals, having been inoculated with this matter, became also smitten with the disease. And, in carrying the cultivation of the virus to the eighth generation, the matter remained still effective.

The microscopical examination of the cultivated liquids showed that they were the seat of the growth and development of a kind of bacterium, resembling *bacillus subtilis* of Cohn, and representing a fine, delicate rod, thinner than *bacillus anthracis*, described by Koch.

In comparing the four diseases above described with each other, we can not but notice the similarity of their accompanying symptoms, and of the anatomical changes observed after death. They are all characterized by an affection of the spleen, lungs, heart, and intestines, accompanied by hæmorrhages, ecchymoses and metastatic abscesses, symptoms depending more or less upon a depraved condition of the blood, and resembling those of typhus fever. Therefore, it may be presumed that the presence of living bacteria, found in the blood of the affected men or animals during the latter stages of these diseases, is due to the diseased condition of this fluid, affording a favorable medium for the development of these organisms; and that the disease itself is rather owing to the introduction of some specific poison into the blood. And this view has been entertained for a number of years by a large number of eminent pathologists of Europe, based upon the results of their own numerous experiments and observations. With the exception of the spirillæ, appearing during the pyrexia of relapsing fever, it is proved in all other instances that these organisms stand in no direct relation to the febrile or other symptoms of the disease.

At the same time, however, that the futility of the germ-theory became more evident by the accumulation of numerous facts, showing that the bacteria did not represent the real cause of infectious diseases, other experiments were made for the purpose of showing that bacteria were found even in the blood of healthy animals. Thus Tiegel took pieces of different organs of freshly killed animals, and, fastening them to a previously boiled silken thread, plunged them successively into boiling paraffine, until they were covered by a thick layer of this material. Though it was supposed that the boiling heat of the paraffine had destroyed every living germ at the surface of the pieces, and that the layer of paraffine covering them had prevented the access of fresh germs, bacteria were nevertheless found in the interior of the pieces after the lapse of several days. '

These experiments, while attracting much attention, were repeated by other investigators; and, as the results obtained corroborated the statements of Tiegel, it was concluded that the bacteria themselves, being always present in the blood, were unable to exert any influence upon the production of pathological processes. Professor Burdon-Sanderson also investigated this matter by repeating Tiegel's experiments with a slight modification, rather improving the process; and in referring to the experiment in one of his lectures on "The Infective Processes of Disease," delivered in the University of London about a year ago, he says that, under the conditions described, it seems to him quite impossible to suppose either that germs could penetrate to the organ (the liver or kidney) from the outside, or that any germ, encountered by the organ in its transference from the body of the animal to the basin, could escape destruction. If, therefore, bacteria be found, they or their germs must have been there before the organ was plunged into the hot liquid. From these experiments, he then concludes that germs continually enter the blood by the way of the portal circulation; and, as no bacteria exist in the circulating blood, the alternatives are that either the bacteria are formed and immediately afterward destroyed, or they are not allowed to germinate, because the conditions under which they are placed in the living organism are such as to prevent their development.

Burdon-Sanderson, then, fully indorses the correctness of Tiegel's statements, and, moreover, explains the phenomenon according to his own views. But whether this explanation is correct we may know by looking at the other side of the question, answered by Messrs. Chiene and Ewart ("British Medical Journal," August 3, 1878), who most definitely proved the absence of bacteria or any other organism in these organs, if removed and examined under a spray of a solution of carbolic acid, together with other precautionary measures, taken during the experiment to prevent the access of these organisms. From these experiments we may learn to receive the statements regarding the presence of bacteria in the living blood or tissues with a great deal of caution.

Although I do not entertain the slightest doubt as to the presence of bacteria in the circulating blood of animals affected with splenic fever, I nevertheless suspect that, in more than one instance in which bacteria were proclaimed to have been found in the blood, they got there after the death of the animal; while in other instances, in which they really existed in the circulating blood, it was only during the last stage of the disease, having been absent in the beginning. A number of cases of splenic fever, in which either no bacteria were found at all during life, or only shortly before the death of the animal, are recorded; and it can not be denied that one of these cases, if well authenticated, very strongly proves that all the phenomena of splenic fever, like those characterizing other contagious diseases, are produced *by the action of a specific poison*, and not by the special influence of bacteria that may be present.

As regards the pneumo-enteritis of the pig, the experiments of Dr. E. Klein show most conclusively that the virulent poison does not reside in the blood, but in the secretions and exudations of the animal. Bacteria were only found in the cultivated liquids, the virulence of which undoubtedly depended upon the original poison transmitting its noxious properties from generation to generation, and not upon the presence of the bacteria.

As bacteria are only occasionally met with in the blood of septicæmic patients, and as for this reason the symptoms of purulent infection in septicæmia can not be attributed to the influence of these organisms, there remains, of the four infectious diseases above cited, only typhus recurrens, in which the paroxysms might depend upon the presence of the spirillæ in the blood. And I must confess that the regular appearance of these spirillæ in the blood at the beginning of the pyrexia, together with their absence during the period of intermission, is so striking in character as almost to incline me to regard these organisms as the true cause of the disease. The contagious nature of this disease has been sufficiently proved, though I know not whether it is communicable during the intermission as well as during the paroxysm. But it has been stated that it may be communicated by inoculation with the blood, that is, if taken from the patient during the pyrexial paroxysm. If, then, it should be sufficiently proved that relapsing fever is not contagious during the period of intermission, it would certainly represent the only disease to which the germ-theory would be applicable. As it stands now, the phenomenon is still shrouded in mystery, though I doubt not that, even in this case, it will be eventually shown that the spirillæ do not represent the essential element of the morbid cause.

That organized bodies may exist in the blood of certain animals without interfering with the normal functions of this fluid, is sufficiently proved by the discovery of Mr. E. Ray Lankester, in 1871, of a large infusorium in the blood of the common frog of Europe, *rana esculenta*, which he called *undulina ranarum;* and, furthermore, by my own, made almost at the same time, of a similar infusorium in the blood of our tree-frog during three successive years. Though these infusoria were quite numerous in the blood of these animals, nothing abnormal could be discovered in the behavior of the latter, a considerable number of which I kept under observation for many months.

There is a common idea prevalent among medical men that the air we breathe is pregnant with fungous spores and bacteria, and that hundreds of these minute organisms are inhaled with every inspiration by all men and animals. And it is this coarse error which has rendered the germ-theory so acceptable to the medical practitioner. It is true that under certain circumstances or conditions these minute organisms are met with in the air, though in a comparatively small number, for the very reason that the natural media in which they live are fluids in a certain state of decomposition, in which they multiply to countless numbers. This assertion is fully proved by the observations of Cunningham, made a few years ago at Calcutta, for the purpose of determining whether there existed any definite relation between the quantity of organic matter in the air and the prevailing diseases, such as diarrhœa, dysentery, cholera, miasmatic fever, and dengue, or whether these diseases depended upon certain forms of organisms suspended in the surrounding air. For this purpose he used a weather-vane in the form of a tube, containing a plate of glass covered with a layer of glycerine, to which all particles contained in the surrounding air would adhere. The apparatus was placed in the vicinity of a prison, and five feet above the ground. The matter adhering to the glycerine consisted of particles of silica, amorphous granules, carbon, lime, starch-granules, cells, hair, fragments of vegetable tissues, filaments of cotton, hairs of insects, oil-globules, pollen-granules, spores and cells of fungi and algæ, sometimes also bacteria, but in a small number. It was impossible to show a relationship existing between the amount of these particles and the diseases above mentioned.

But if these organisms existed in such great numbers in the air, and if they alone were capable of inducing putrefaction, the people of New Orleans would soon be aware of it; for, using as we do only rain-water for drinking or cooking purposes, exposed in open cisterns to the hot air of our summers, sometimes for months, this should certainly undergo putrefaction under these circumstances. But, as everybody knows, such an event hardly ever takes place, as long as the cistern is kept clean, and the fresh air has access to the water. I have been using this water now for many years in my microscopical examinations, but I do not remember ever to have met with bacteria in it. It is only in water standing in old foul cisterns that, in company with algous plants, infusoria will be met with. Bacteria do not appear until putrefaction has set in.

Many other facts might be adduced to demonstrate the unstable foundation upon which the germ-theory, now so popular among our physicians, has been built; but I trust that those mentioned in the preceding pages will suffice to expose its futility. Nevertheless, in order to clearly demonstrate that the cause of yellow fever is not a living germ, it is necessary first to correct an error extensively prevailing among physicians unaccustomed to microscopical studies. This error mainly consists in confusing the minute dead organic particles, constantly floating in the air, with living germs contained in the same medium; and, furthermore, in the supposition of the existence of living germs, too small to be seen with the aid of the microscope.

In speaking of the presence of organic matter, contained in the air we breathe, reference is frequently made to Professor Tyndall's optical experiments. Now, in looking a little more closely at these experiments, ingenious as they were, it will be found that their results only corroborated facts which had been known before; namely, that the air which surrounds us is constantly pregnant with organic matter, including numerous minute living germs. That the air is full of both inorganic and organic particles, nobody doubts, for a glance at a sunbeam passing through a window into a dark room shows them even to the naked eye. But that all these particles should represent living germs is a different question. In considering the waste of organic matter constantly taking place in both organic and organized bodies, it is but natural to infer that the air should be pregnant with organic particles, though only a small portion of them truly represent living germs. A particle of organic matter, therefore, is very far from being a germ from which a living being may spring.

These remarks imply that the term "germ" is only applicable to a living thing, from which another living thing may spring or be developed. A seed is a germ, as long as it is living and capable of giving origin to a living being, but as soon as it loses this property it is no longer a germ, but only represents ordinary dead organic matter. A granule of starch, therefore, is not a germ, being incapable of producing another starch granule.

A number of times it has been remarked to me by medical friends that living germs might exist in the air, too minute to be seen by the aid of the microscope. To this I can only answer that the "germ-theory" has never been based upon invisible germs, even by its most enthusiastic supporters. Hallier and Pasteur, the most persevering germ-theorists, never attempt to substantiate their assertions by things they could not see. They only failed in proving that the germs or organisms which they did see represented the true cause of disease. The smallest organisms known at present are the monads, bacteria and vibrios, representing minute granules, either single or arranged in rows, as already mentioned. But, minute as they are, they really require no high amplification to be perceived in the form of a dot; it is only for the study of their details that high magnifying glasses and correct illumination are required. And, as stated before, the modes in which they multiply have even been studied by the aid of the microscope. The modern microscope is fully able to show things much smaller than these organisms, regarded by germ-theorists as the causes of disease: and, unstable as the germ-theory may be, it is surely not based upon imaginary objects. Its failure only consists in its inapplicability to the phenomena associated with the pathological processes of the disease in question.

Let us now inquire whether it is possible to explain the cause of yellow fever upon the theory of a *contagium vivum* or not, and commence with the consideration of some points of difference existing between this disease and those before discussed, in which bacteria have really been met with in the blood of a number of the affected individuals. The most prominent anatomical changes observed in these diseases are, as will be remembered, venous congestion, hæmorrhage, and numerous spots and patches of ecchymosis in different organs, changes similar to those observed in typhus fever, and which, together with other symptoms, obviously show the typhoid character of these affections. The congestion, enlargement, and softening of the spleen particularly show that the process of rejuvenation of the blood has been disturbed, and has induced a depraved condition of this fluid, characterized by a loss of coagulability and imperfect oxygenation. The congestions, being venous in character, are naturally owing to a sluggish circulation. Finally, in all cases where bacteria are found in the blood, the greatest number of these organisms are met with in the spleen, indicating that this organ is particularly affected, and forms a prominent seat of the disease.

In yellow fever, on the contrary, the spleen, with a few exceptions, is generally found in a normal condition. The congestion observed during life in the mucous membrane of the mouth presents a scarlet instead of a purplish hue, being arterial in character; the same phenomenon is observed after death in the congested condition of the smaller arteries and capillaries of the pia mater. The coagulability of the blood is not lost, as has been erroneously stated. In severe cases, hæmorrhages, caused by the rupture of minute vessels, may take place from different mucous membranes, but hæmorrhagic effusions into the interior organs are hardly ever observed. The most characteristic phenomenon, however, is the fatty infiltration or degeneration constantly met with in a number of organs. From this want of similarity, we may well judge that yellow fever depends on its own *specific poison*, the probable nature of which, as it appears to me from my own experience and observation, we shall now discuss.

When, in 1867, the yellow fever appeared again at New Orleans, and soon extended over the city in the form of an epidemic, I adopted the view, then generally entertained by the medical profession and the people, that the disease was non-contagious; and, as the fungi theory, originating in the statements of Klob and Hallier, was then prevailing among medical men, I also inclined to the view that yellow fever depended upon some kind of micrococcus floating in the air. And, in accordance with this idea, I examined the mucous membrane of the alimentary canal and respiratory passages in quite a number of cases at the Charity Hospital, but without discovering any micrococcus or other organisms in these localities; in the same way, I failed to discover anything abnormal in several specimens of blood, from hæmorrhages of the nose, in some of my private patients. It was only in the black vomit, of which I examined very numerous specimens, that I met with fungi and their spores, representing principally the *torula cerevisiæ*, or yeast-plant, together with micrococcus. As it was obvious that the organisms found in this locality could not have any relationship with the primary cause of the disease, I did not hesitate to discard the fungi theory, while retaining the view of the non-contagiousness of the disease. And, in view of the analogy certainly existing between some of the symptoms of miasmatic and yellow fever, I became inclined to regard the latter as a miasmatic disease in the most intense degree, depending upon a poison arising from a combination of decomposing vegetable and animal matters. Another reason for this view was that the disease principally prevailed in cities, in which large numbers of men and animals lived in close proximity along the borders of swampy rivers. This view, which is still entertained by a considerable number of physicians, I favored until the yellow fever epidemic of 1878 made its appearance.

Previously to this time my studies had been principally directed to the pathology and treatment of the disease; and I must confess that, since I failed in demonstrating the primary cause of yellow fever upon the theory of a *contagium vivum*, I had paid but little attention to this subject afterward. But when I observed, during this last epidemic, the disease slowly extending, in some instances from house to house, and afterward from district to district, and from our city to neighboring communities and States, and even to isolated places in the country, my attention was again directed to its cause, and by subsequent and more systematic studies I became convinced of its contagious nature.

Yellow fever, then, is a disease, running a regular course, and accordingly depending, like small-pox, scarlet fever, measles, and other kindred diseases, upon a specific poison of animal origin, being a product of the diseased human organism itself. This assertion is proved by the characteristic feature it presents in common with all other specific diseases, consisting in the *immunity* from a second attack, imparted to the individual once affected; and this immunity from a second attack, which most strikingly distinguishes specific diseases from all others, must be constantly kept in view, in studying the nature of the peculiar poison producing yellow fever. In connection with this prominent feature of the disease, I may be permitted to mention that, from what I have learned, my friend Professor J. Dickson Bruns has, in his lectures to medical classes, always laid particular stress upon this feature of yellow fever, for the purpose of proving its contagious nature.

The precise nature of the particular pathological changes which impart to the organism this immunity from the effects of the poison afterward, we are at present unable to determine. Perhaps the most popular view is that the poison alters the constitution of the blood in such a manner, and so permanently, as to be unable to make any further impression upon it afterward. Equally difficult is it to say whether the changes are wrought upon the colored blood-corpuscles in particular, or upon the plasmatic portion, the liquor sanguinis, furnishing the nutriment to the organs and tissues of the body. Judging from the unusually rapid disturbance in the nutrition of the organism, manifested by the phenomenon of fatty infiltration and degeneration in a number of organs, and also by nervous disorders, the liquid portion of the blood would appear to be first affected; while, on the other hand, the facility with which the blood-corpuscles seem to part with their hæmoglobin, as my observations have shown, indicates that these bodies must be likewise affected. For a number of years I have, in relation to the difference existing in the impression of the poison upon the blood in miasmatic and in yellow fever, been in the habit of illustrating it in a somewhat homely manner by assuming that in the former the impression of the poison is only functional in character, and in consequence evanescent; while in the latter it is organic in its nature, and therefore permanent, and insuring immunity from a second attack. But, though it appears to me very reasonable that the immunity should depend upon certain permanent changes, wrought by the poison upon the blood, I can not forbear to presume that similar changes may at the same time take place in the nervous tissues, rendering them in the same manner unimpressible for another attack.

Besides the immunity from a second attack, characterizing yellow fever as a disease produced by a specific poison, the clinical symptoms, and, moreover, the anatomical changes observed after death, also speak for its peculiar and specific character. But, as a specific disease can not be produced in the human body by a general cause, it is obvious that the specific poison producing it must be derived from another human body affected by the same poison, and that this poison must necessarily be a product of the organism of the affected individual. We may, therefore, presume that a *general* cause *can not* produce a *specific* disease.

To illustrate this proposition, we may take for example a number of persons of different age, sex, and constitution, exposed to a sudden and severe change of temperature by leaving, insufficiently clothed, a warm and overcrowded room, and entering the cold night air of the street. It will be found, in this case, that the effects produced by a general cause—the cold air—upon these persons, may differ in each individual; for, while in the one they may manifest themselves in the form of a simple coryza, they may result in the others in bronchitis, pneumonia, rheumatism, diarrhœa, or other affections, implicating the one or the other organ of the body. Each of these different affections, at first local in its nature, may, if extending, involve the nervous system sufficiently to give rise to the phenomenon of fever. Here we see how one and the same cause produces different effects, according to the peculiar diathesis or constitution of the affected individual. But, if now, on the other hand, a number of these persons, some time after they have recovered from their various affections, are introduced into a room, the air of which is tainted with the exhalations of a number of small-pox patients, while the rest of them are taken to a room infected with the exhalations of yellow-fever patients, it will be found that the first party will surely be affected with small-pox, and the other with yellow fever, unless they had been affected with these diseases at a previous time. Each person will, to the *exclusion of every other disease*, become affected with that *particular* disease of which he has inhaled the specific poison, emanating from the affected individuals. In every contagious disease, therefore, the infectious poison first proceeds from the diseased organism itself, and, in the same manner as we have seen in putrefactive septicæmia, *increases in intensity with each individual through whom it passes.*

From this explanation, it will be seen that yellow fever, when it first appears, never attacks a number of persons, isolated from each other, at one and the same time, but always, like every other contagious disease, starts from single centers, represented by the infected individuals. And the only manner in which it spreads is either directly from individual to neighboring individual, or indirectly, when the poison, emanating from the affected individual and adhering to clothes and other objects, is carried to a distant place and inhaled by another person. A number of centers may arise in different localities of a city, which, increasing in dimensions, may at last meet. In this manner alone the infectious poison is able to extend over a large city, like New Orleans; and the surest proof of this assertion is offered by the slow march in which the disease walked over our city during the last epidemic. An infectious poison, on the contrary, being contained and distributed throughout the air of a city or locality, either in the form of living organisms, or in the form of vegetable or animal effluvia arising from decomposing matter, will necessarily affect every person susceptible to infection nearly at the same time, and, in consequence, rapidly extend over a city or district. For this reason, the theory of a *contagium vivum*, or of the miasmatic or effluvial origin of yellow fever, is entirely inconsistent with the contagious character of the disease. But, notwithstanding these existing circumstances, there are still a number of physicians who, while they recognize the contagiousness of yellow fever, entertain at the same time the incongruous idea that the cause of the disease is represented by minute living organisms, and, for the sole reason, as they say, that this is the only theory upon which they can understand the multiplication of the poison, as no thing could multiply unless it were endowed with life.

I shall try to explain this subject satisfactorily by a suitable comparison. In every organized body, whether plant or animal, we meet with an albuminous substance which is regarded as the basis of life, and is generally known by the name of "protoplasm." This protoplasm, as we all know, forms the basis of all tissues performing a vital function, whether consisting of cells or fibers; and, though it is not an organized body, it nevertheless represents living matter and is endowed with the power of appropriating other matter unlike itself, and of imparting to it its own properties; or, in other words, of converting this matter into protoplasm. Now, it is upon this principle that all organs and tissues of the body not only rejuvenate themselves but also increase in size. Thus, the protoplasm of a muscular fiber appropriates new matter and converts it into muscular fiber; the protoplasm of a ganglion-cell imparts its properties to the same new matter furnished by the plasma of the blood and converts it into nervous tissue, etc. The new matter is in all cases the same, but it is the protoplasm of each particular tissue which represents the converting agency.

The specific poison, having entered the circulation, and being diffused throughout the blood, imparts, like the protoplasm, its own properties to this fluid, giving rise to all the pathological phenomena characterizing the disease. Still, it must be remembered that the degree of intensity of the disease depends entirely upon the quantity of the poison taken up by the blood. If the quantity is sufficiently large to affect all the blood circulating through the organism, the disturbance of nutrition would be so great as to interfere at once with all the vital functions, and the case would prove fatal very rapidly. We may therefore presume that, with some rare exceptions, in all other cases of yellow fever the poison affects only a smaller or larger portion of the blood, leaving to this fluid sufficient integrity to nourish the organs and tissues at least for some days, thus affording an opportunity to the organism to rid itself of the poison. This, however, can be accomplished in no other way than by means of the action of secreting, or, as we may say in this case, excreting cells, the same organs through which the organism rids itself of all other foreign or wasted matter. Thus the poison, already increased in quantity by that portion of the blood to which it imparted its own properties, is absorbed from this fluid by the cells of different glandular organs during its passage through the capillaries surrounding the individual minute glands. And, in passing through these cells, it again increases in quantity by imparting its noxious properties to their natural secretion, together with which it is finally eliminated from the organism. In yellow fever, therefore, as in all other contagious diseases, it is in the secretions, especially those of the glandular cells of the skin and of the respiratory passages, that the noxious poison is contained, and with which it is removed from the system.

In some contagious diseases, the poison, before leaving the body, gives rise to certain pathological processes in the epidermic cells of the skin, manifested by divers exanthematous eruptions which, in some instances, as in small-pox or the cow-pock, proceeds to the formation of vesicles and pustules containing the poison in liquid form. Nevertheless, even in these affections, a portion of the poison leaves the body in a gaseous form, possessing the same virulent properties as the liquid contained in the vesicles and pustules. In yellow fever the poison emanates from the body of the affected individual only in a gaseous form, in which it may be communicated to another individual, or may adhere to surrounding objects, as clothes, bedding, furniture, etc. In the latter case, however, it may be supposed that, while adhering to these objects, it undergoes a certain condensation, in which state it is transported to distant places. But, as soon as acted upon by a certain degree of moisture and heat, it again assumes the gaseous form, in which it may then be communicated to other persons. But, as the intensity of the attack of the disease is perhaps in most cases proportionate to the amount of poison taken up by the affected person, it is not necessary that the first case to which the poison is conveyed by the medium of these objects shall terminate fatally. On the contrary, a number of persons may successively become affected without a fatal termination. But, as the yellow-fever poison, like the purulent poison of septicæmia, increases in intensity with each individual through whom it passes, death will eventually be the result. This fact will explain the phenomenon of the considerable interval of time which has frequently been observed to intervene between the first fatal cases of yellow fever; cases appearing in different localities of a city, and between which no connection can be traced, for the reason that it is *only the fatal cases* which in the beginning of an epidemic attract attention.

Much has been said and written about certain meteorological conditions required for the activity and propagation of the yellow-fever poison, such as a certain amount of moisture in the air, together with a continued tropical heat, a deficiency of ozone, etc. Though nothing positive concerning these conditions has thus far been ascertained, I entertain no doubt that these suppositions are to a certain extent founded upon truth; for, the fact that yellow fever has assumed the dimension of extensive epidemics only at shorter or longer periods, while, on the other hand, it has frequently existed in the form of so-called minor epidemics, or been even represented only by a few sporadic cases, shows that these atmospheric conditions are not always present. Neither does the noxious poison, after its absorption into the blood, manifest its activity in the same degree in different persons, a phenomenon to be explained by the different degree of susceptibility which these persons possess to the effects of the poison, depending probably upon the particular state of their constitutions at the time when it is brought in contact with the latter. Thus we frequently meet with persons who have been exposed in many different ways to the action of the poison during several severe epidemics, without ever being affected, but who, after the lapse of many years, are finally attacked by the disease. Nothing is known of the nature of this singular immunity, whether it is owing to a peculiar constitution of the blood or of the nervous system.

Although the customary assertion that native-born or long acclimated persons enjoy immunity from an attack of yellow fever has now been sufficiently proved as unfounded, it can not be denied that, in most instances, acclimatization greatly ameliorates the severity of the attack. This is most strikingly observed in unacclimated persons, especially in those who have lived in northern latitudes, beyond the yellow-fever zone, who were generally the first victims of the disease. And it has become a general rule, corroborated by all writers, that the nearer a person has been born and lived to the North Pole, the more liable he is to be attacked by the disease, and the smaller his chances are for recovery. This fact evidently shows not only that there exists a difference in the constitution of the blood of these different persons, but, moreover, that the air of the yellow-fever zone must in some essential points differ from that of northern climes, enabling it to exert a certain unknown influence upon the constitution of the blood of those persons who breathe it, adapting it, so to speak, to the yellow-fever poison. And to this circumstance it is mainly due that the rate of mortality during the last epidemic has been proportionately much larger in Memphis, Vicksburg, Holly Springs, and numerous other places, than in New Orleans, or even in other parts of southern Louisiana.

Although the facts already mentioned suffice to prove the animal origin of the poison producing yellow fever, and the contagiousness of the disease, I shall, in corroboration of this assertion, adduce some additional evidence. In discussing in the preceding pages the application of the germ-theory to infectious diseases, I have already shown its futility, *unless the actual presence of the bacteria in the blood of the diseased individual is proved in every case occurring;* for even a few exceptions will show that the presence of these organisms is not essential to the disease. Now, in yellow fever *no bacteria, or any other living organisms, are found in the blood of the patients* during any stage of the disease. As I have stated in my paper on the pathology of yellow fever, published in the February number of the "New York Medical Journal," 1879, I examined at the Charity Hospital during the last epidemic, very carefully, the blood of fifteen living patients in the different stages of the disease, without detecting even a *single bacterium*, or any other foreign body in this fluid. Neither did I observe any of these organisms in the blood when examined shortly after death; it is only when decomposition commences that they make their appearance. But not only is the blood, but the other tissues also are found free from anything living, provided they are guarded from decomposition. These facts require no further comment, as they show most forcibly the impossibility of applying the germ-theory in any way to yellow fever. There is, however, another fact corroborating my assertion that the noxious poison of this disease represents a vitiated secretion of the diseased body itself. It relates to the peculiar odor associated with certain contagious diseases, such as small-pox, etc., emanating especially from the secretions and exudations of the skin. In small-pox this odor is sufficiently strong and characteristic to enable the physician, in some cases, to diagnosticate the disease by the olfactory sense alone, and before the eruption has appeared. In yellow fever, also, there is a peculiar odor associated with the exhalations of the patient. This odor is so peculiar as to have always been observed, and also described by a number of writers; some of these even regard it as a pathognomonic symptom of the disease. Emanating from the body of the patient, the odor may be regarded as a manifestation of the contagious principle in its gaseous state. And judging from its strength, as it emanates from only a single patient in a badly ventilated sick-room, it is easy to form an idea of the quantity of the poisonous principle to which it is due; and, furthermore, of the facility with which it may adhere to the clothes of visitors to be carried to distant places, or how easily it may communicate itself through the open windows to neighboring houses and people.

The peculiar odor associated with the exhalations of yellow-fever patients, I noticed very particularly while I was engaged in examining the blood of living patients during the last epidemic, and when, in order to obtain the specimen of blood, I was obliged to approach and remain for some time in very close contact with the patient. And it was during these examinations that I became affected with the disease myself, though I had escaped it in former epidemics; an attack, however, from which I soon recovered. But it is not only the living body from which this odor is perceived to emanate; on the contrary, the cadaver also, as long as it is warm, is characterized by a peculiar odor, slightly differing from the former. Here, however, it is especially perceived when the cavities of the body are opened, or when the muscles are deeply cut into or laid bare.

The question, whether yellow fever may spontaneously arise among us, has always been agitated among medical men, and, owing to the existing diversity of opinion regarding the nature of the disease itself, has never been satisfactorily answered; and unless physicians will base their opinions only upon solid, observed facts, instead of unobserved fancy, it never will be correctly answered. As far as I am able to judge, yellow fever is almost always communicated from person to person in the manner already explained; and, reasoning from this fact, it is obvious that, in order to arise anew after having been once extinguished, it must be freshly imported. But, besides this, it is also possible that some of the poison, adhering to clothes and other objects during the winter, in a state of inactivity, may resume its activity as soon as the particular conditions required are present, and thus give rise to new cases of the disease. The possibility of such an origin is proved by a number of authenticated cases of scarlatina, variola, and other contagious diseases, which arose in this manner. But, in considering that the disease must have arisen spontaneously at some previous period, however remote, it is only reasonable to admit also the possibility of a spontaneous origin at the present time. However, if the disease ever arises spontaneously in this manner, it can only be confined within the limits of a small locality, and in the presence of all the elements, necessary to a spontaneous origin of the disorder in the human organism, from which eventually the specific poison emanates. Typhus fever, though in most cases communicated from person to person, has spontaneously arisen in this manner, when a large number of persons, insufficiently clothed and nourished, have been crowded into a small room without ventilation. In such a case the exhalations emanating from the bodies of the various individuals, already vitiated by the broken-down constitutions, are inhaled again, and, together with other causes arising from the sufferings and wants of these individuals, such as a continued exposure to cold, etc., give rise to that peculiar condition of the blood characterizing this fatal disease. Yellow fever may sometimes arise under similar circumstances, though, unlike typhus, only in the presence of a high temperature, combined with moisture and other atmospheric conditions. Such an origin, however, appears to me not very probable, though its possibility can not be disputed.

Regarding the decline and final disappearance of an epidemic of yellow fever, it is very generally believed by physicians, as well as by the people, that the noxious poison is destroyed by frost. The apparent truth of this assertion, however, is rendered very doubtful, not only by the consideration of the fact that at New Orleans the epidemic has almost always nearly disappeared when the first frost occurred, but, furthermore, by the new cases arising frequently long after the appearance of this meteorological phenomenon. Thus, in the epidemic of 1867, I paid the first visit to my last case of yellow fever on the tenth day of December, a case which, though not proving fatal, was nevertheless a severe one, accompanied with jaundice and extensive hæmorrhages from the lungs, the patient being an unacclimated foreigner. The same circumstances obtained, as far as I remember, during the last epidemic at Memphis and other places situated more northerly than New Orleans, where the disease continued to prevail for some time after the appearance of the frost. Thus the epidemic always reaches its maximum height a considerable time before frost appears; and there is no doubt that its decline is mainly owing to the decrease of the number of those persons susceptible to the action of the yellow-fever poison, and also to the gradual disappearance of those unknown meteorological conditions of our atmosphere which, when present, favor the evaporation of the poison from the bodies of the affected individuals, and its inhalation by other persons; while, at the same time, the systems of those persons who thus far escaped the disease are reinvigorated with the approach of cooler weather in the month of October. These are, as I suppose, the main causes to which the decline of the disease may be attributed, though the germ-theorists firmly believe that the frost kills the germs, representing, as they suppose, the cause of yellow fever.

In regarding the nature of the cause of yellow fever, such as has been expressed and demonstrated in the preceding pages, there will be no difficulty met with in determining the proper means of prevention, especially if an agent could be found possessing the property of effectually destroying the activity of the yellow-fever poison, adhering to the clothes and other effects of passengers, or to merchandise brought in ships to our shores from distant ports infected with the disease, but *without damage to these objects themselves.* Without such an agent it is impossible to establish a quarantine both efficient and, at the same time, not interfering seriously with the interests of commerce. It is, therefore, of the greatest importance that to this subject particularly the attention of scientific men should be directed. In recent times very numerous investigations and experiments have been made by the scientific men of Europe, for the purpose of discovering a disinfecting agent possessing the properties above mentioned; and, accordingly, many substances have been tested, the most efficient of which, however, are impracticable for the purposes of a quarantine. As it is impossible to give an account of the details of these experiments in this place without enlarging upon the subject, I will only mention that the *process of oxidation* is generally looked upon as the surest means of disinfection, and that, in consequence, free ventilation is in all cases the first law to be observed. Thus the exposure of infected articles to the fresh air alone may be sufficient to cause the decomposition of the adhering noxious poison. More efficient, however, will be the artificial application of pure oxygen, especially in its electrical state, that of ozone. Dry heat, also, is very effectual, and has been used for a number of years in European hospitals for the purpose of disinfecting the clothes of patients affected with contagious diseases. In fine, the poison must either be decomposed by oxidation, or be rendered harmless by diffusion in the higher strata of the atmosphere, where it will undergo a still more certain decomposition by the influence of the ozone upon it. Sunlight, also, is a most efficient agent for the destruction of animal poison.

But, if, notwithstanding an efficient, well-regulated quarantine, yellow fever should again make its appearance in our city, the most important sanitary measure would certainly consist in a *perfect isolation* of the first cases from the surrounding community, a policy which in every European country is practiced with the greatest care and severity, and which is the only sure way to be pursued for preventing a contagious disease from assuming the form of an epidemic. If thus the poisonous principle is confined to a limited locality, it must eventually become destroyed by the proper means, or even by the action of the air alone.

In concluding this article, I can not forbear to point once more to the absolute necessity of first studying more systematically the pathology of yellow fever, before we can hope to keep this disease successfully in check, that is, confined to limited localities; and, furthermore, to renounce all empty speculations regarding the nature of its cause; but, on the contrary, to look the enemy in the face, in regarding it as a contagious disease of animal origin, such as I have demonstrated in this essay. For, if, on the other hand, the cause producing yellow fever really consisted of minute living organisms, existing in large numbers in the air we breathe, and capable of multiplying indefinitely, as has been asserted by some writers, it must be obvious that any quarantine, however strict and well regulated it might be, must prove a failure. And, moreover, as these organisms would be inhaled by every person alike, and indefinitely multiply within the blood, there would not remain the slightest hope for any person ever to recover from an attack of yellow fever.

Art. II.—*Surgery or Mechanism in the Treatment of Congenital Cleft Palate.* By Norman W. Kingsley, M. D. S., D. D. S.

Staphyloraphy has been a more or less successful surgical operation for nearly sixty years. During that period thousands of cases have passed from the surgeon's hands, and probably in half of those cases there has been a union of the cleft velum to a greater or less extent.

Its prestige in this country was largely due to Drs. Warren and Mutter, and in England to Sir Wm. Fergusson, who did more than any other English surgeon to give it popularity.

But as a beneficent operation we may well ask, What has it accomplished?

It is pretty safe to say that, except in extraordinarily favorable cases, no American surgeon, who values his reputation and has a desire to contribute to the highest welfare of his patient, will now advise or undertake it.

There may be cases of slight separation of the soft tissues, with abundance of material as a reserve, where a surgical operation would be advisable, but of hundreds of cases that might seek surgical aid but very few, if any, would come under the head of this exception.

Nevertheless, it is still occasionally performed in this country, and in England is probably more generally practiced in the treatment of such cases than any other method.

The fact that such distinguished authority as Sir Wm. Fergusson should adopt and continue to practice it during his life was quite sufficient to stimulate others to adopt it without question as to its beneficent results. But one thought in the interest of patients has seemed to govern all surgeons in this practice, which was: that a roof to the mouth of natural tissue must be better *per se* than no roof, or than an artificial one, and, although the practice has been tested in a thousand cases by the most eminent surgeons of their time, it has resulted in such an uniformity of failure, considered as a beneficent operation, that it should have been long ago utterly abandoned.

The only evil arising from congenital cleft palate which demands the interference of science and art is its improvement of articulate speech.

With a loss of any portion of the palate, whether congenital or accidental, sufficient to make a permanent communication between the buccal and nasal cavities, the perfect articulation of any spoken language is impossible.

In the English language, spoken with a defective palate, the sound of D approximates the sound of N; that of B to M; K and G become impossible except under very peculiar conditions,* and S, T, and Ch, become difficult and sometimes impossible; besides, the resonating tone-power of both buccal and nasal cavities becomes entirely changed by their partial or complete union, or by the change in their form and dimensions. So that from these various causes the speech of people thus afflicted becomes altered in tone, indistinct in its enunciation, wanting in many of its sounds, difficult and sometimes impossible to understand, and altogether disagreeable.

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* The scope of this article will not permit the introduction of all the phenomena of the mechanism of speech with abnormal organs. One who

To such an extent has this cause and this alone operated on a sensitive mind, that it has often in the absence of relief driven the sufferers from society and made them utterly wretched.

This is quite sufficient to call forth all the resources of science in seeking a remedy.

Previous to a complete understanding of the physiology and functions of the velum and pharynx, it would be a very natural conclusion to arrive at—that, as there were evils arising from a fissured palate, if the fissure could be healed up the evils would pass away and the natural functions follow; but a better knowledge of these functions in the mechanism of speech has demonstrated that it is anatomically impossible to correct those evils by surgery, and sixty years of experience proves the correctness of this statement.

The velum-palate as an organ of speech is second to no other in importance. Anatomically, it is only a valve hinged like any other valve on one side, while the other side is free to move as directed.

The velum is thus hung at the edge of the palatine bone, which is of course stationary, while its posterior border is elevated or depressed by the action of the muscles.

In its function as a valve it may be raised until it comes into close contact with the wall of the pharynx and thus shut off all passage through the nares, or it may be depressed until, meeting the dorsum of the tongue, the passage through the mouth is stopped; or, again, it may hang midway between the oral and the nasal cavities, and thus the emission of

may be *perfectly* familiar with the process with normal organs, but has not had an extensive experience with abnormalities, will be astounded at the phenomena produced sometimes in such cases. He will hear distinctly sounds which he has regarded as impossible.

sound from the larynx might escape through both mouth and nose.

But, for the performance of these functions, it must be free from perforation or fissure, and *must be of such length that when elevated it will meet the pharyngeal wall.*

If a natural velum does not meet this last requirement, it represents a valve which has been cut off at its free margin, and is no longer capable of performing its functions by reason of the escape. Such a natural velum would be as incapable of producing perfect articulate speech as if it were fissured, perforated, or in any other way made defective.

Articulate speech is also dependent in its perfection upon the activity of the pharyngeal muscles.

The closing of the posterior nares is not dependent alone upon the elevation of the velum-palate, but in a large measure the closure is due to the advancement of the pharyngeal wall to meet the border of the palate.

In no work on the mechanism of speech with which the writer is acquainted is this important function of the constrictor muscles of the pharynx fully recognized.

It is an important organ of speech in normal articulation, and in the effort to articulate with abnormal organs it develops an activity and a power at times truly wonderful. So much so that, in some cases in the writer's practice, it (the superior constrictor of the pharynx, in conjunction with the tongue, in cases of the absence of the palate) has enabled the patient to make all the sounds which in normal articulation are dependent upon the integrity of the palate.

The failure of surgery has not been in the inability to bring the edges of the divided velum together and get a union, but it has been in the one respect before pointed out, viz., that the newly formed palate as the result of staphyloraphy is always too short at its posterior edge—does not reach the pharynx, can not be made to, and the speech will necessarily and always be defective, save in some extraordinary cases. As an operation it is with no small degree of pride that the surgeon may view the result of his work in seeing a complete union throughout the entire length of the fissure, including the uvula, and apparently a normal septum where before was a gaping orifice, and thus he may lose sight of—

First, the fact that this new palate has very little muscular power as compared with a normal organ, owing to the injury which the muscles have received in the operation, and—

Second, that it is defective in dimensions because there never was tissue enough to make a velum which would bridge the chasm in both its breadth and length.

The origin of the fissure was in a lack of a development of sufficient material to come together and make a perfect septum, and no division of the muscles or stretching of the tissues subsequently will make up for this developmental deficiency.

It has been also claimed that the operation was not only valueless, but productive of positive harm from the fact that it produced at best a rigid curtain which served to split the column of sound in its upward ascent, and render it less manageable than it was before; that in early life the patient had acquired a certain control over the voice and a measure of articulation which the non-elastic and immovable curtain deprived him of.

In this connection I am reminded of a case shown me by Mr. Pollock, F. R. C. S., in St. George's Hospital, London, some years ago, where Mr. Pollock had performed just twelve months before a very beautiful operation for fissured palate, and the result was a complete union, including the uvula.

As a test of the result, I handed the patient a newspaper and requested him to read to us, which he did. Not understanding him myself, I turned to Mr. Pollock, and asked him if he did. He replied, "No, not a word. I did not before I operated, and I do not now."

The contrasted results of surgery and mechanism are fully shown in the following described case.

In 1866 there came to me a lady about twenty-five years of age, with congenital fissure of the palate, which had been operated upon about ten years before by Dr. Hulihen, of Wheeling, Virginia.

The fissure of the velum was complicated with an extensive separation of the maxillæ, following the line of the intermaxillary suture on the right side, dividing the alveolar arch and also the lip. The lip had been operated on in early life. At sixteen years of age staphyloraphy was performed most successfully. The soft palate was united along its entire length, including the uvula.

FIG. 1.

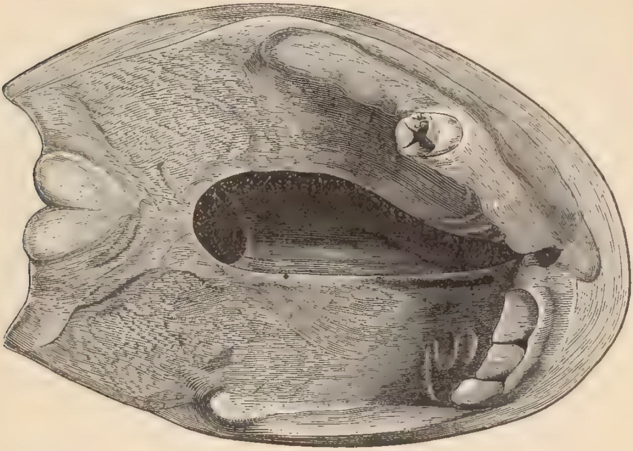

Fig. 1 is copied from a plaster cast taken at the time she came into my hands. In it are shown the fissure of the hard palate and division of the alveolar border, together with the united velum; even the marks of the sutures are distinctly visible in the cast.

For the ten years succeeding the surgical operation the patient had worn an obturator which closed the remaining opening. It was skillfully adjusted, and gave her all the benefit that it was possible to obtain from an obturator alone.* But with ten years of application and an intelligence equal to the undertaking, she was unable to articulate with any more distinctness than before the operation. The father said, "If anything, she does not speak as well."

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* The writer makes a marked distinction between an obturator and an artificial velum or palate. An obturator is a plug or cover to stop an opening, applicable to perforations of the hard palate, and when in use is immovable. An artificial velum is of a different nature, being applicable only to lesions of the velum, and is generally flexible and under the control of the adjoining muscles.

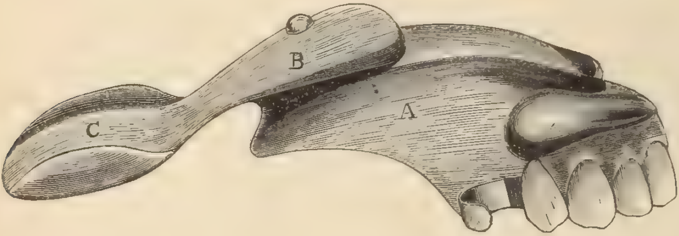
There was very little mobility to the palate, and from the closest calculation there was a space of half an inch in breadth behind the velum, even when the pharyngeal wall was contracted toward it.

Through this space there was a constant escape of the voice. Nearly all the vowels were nasalized; *g*, *k*, *d*, *s*, and *ch* she could not make, owing to such escape.

There was apparently but one solution to the problem, which was to make an artificial extension of the palate to enable it to meet the pharyngeal wall, and thus cut off at times the communication with the nasal cavity. The appliance consisted of an obturator not very unlike the former one, filling the anterior gap, and carrying with it some artificial teeth to supply the loss of some natural ones; and attached to its posterior extremity an extension of *elastic* rubber, following down the superior surface of the palate to its posterior border and beyond to meet the pharyngeal wall.

This apparatus is shown in Fig. 2, and in Fig. 3 it is also seen *in situ*.

FIG. 2.



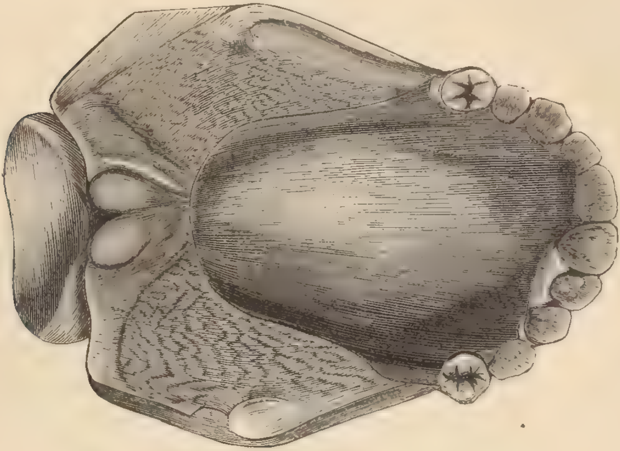
Letter A shows the obturator, B the elastic extension, and C the apron or palate, occupying the space in the pharynx. The same letters apply to both illustrations.

This instrument was introduced by folding the elastic extremity together, grasping it with a pair of tweezers, and passing it through the opening in the hard palate, when it would find its natural position on the introduction of the obturator. Subsequently the patient would carry the palate through the opening with the tip of the tongue alone.

It created no irritation in the pharynx, and was worn with entire comfort.

The only immediate change was in the tone of voice. The vowels and some other sounds were less nasalized.

FIG. 3.



By my advice she went under the training of Professor Peabody, an elocutionist, and in a few weeks showed very marked change. She acquired the ability to articulate with perfect distinctness every sound of the English language, and in reading, with care on her part, would enunciate every word and syllable without fault.

Thirteen years have now passed, and the few teeth then remaining have succumbed to the influences which destroyed their fellows, and not a natural tooth remains in the mouth. Within the past year the obturator here described has been substituted by another bearing an entire upper set of artificial teeth, and the entire apparatus is worn with as much freedom as its predecessor, which was attached to the natural teeth.

The speech has not degenerated, but rather improved in ease.

The interest in this case lies—

1st. In the remarkable success attending the surgical operation where the fissure was of such extreme width.

2d. In its complete failure to improve the speech or produce any other beneficent result.

3d. That a piece of mechanism can be worn in the upper pharynx, and with it a person may acquire distinct articulation.

4th. The pharyngeal portion of such an apparatus must be flexible, elastic, and movable.

Art. III.—*A New Urethrotome.* By E. A. Banks, M. D., Surgeon to Class of Male Genito-urinary Diseases at the Bellevue Hospital Out-door Poor Department.

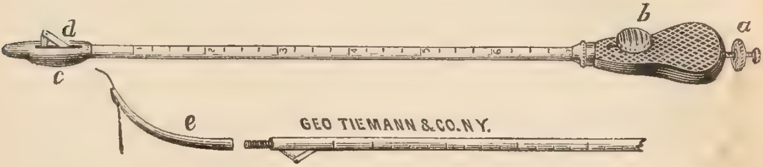
The instrument I present to the profession is one which I devised more than three years since, while seeking to construct a urethrotome which would be free from some of the defects of the old instruments, and contain as many of their advantages as possible. I have heretofore refrained from publishing it, as there were already a number of excellent instruments of this class, and I was unwilling to present a new one without a thorough trial, upon its merits, and a practical knowledge of its usefulness.

During this time of probation it has been used many times by myself and others with entire satisfaction, so I have concluded to present it, believing that it possesses as many advantages as any of the older instruments.

The principle of the instrument is that of a jointed blade lying within a grooved shaft, fastened at one end by a rivet, and connecting with the other (the handle) by a small rod passing through the shaft; by the moving of this rod backward and forward the blade may be entirely depressed and concealed within the shaft, or protruded from it as desired.

There are some attachments belonging to the instrument, comprising several bulbs of various sizes, adapted for strictures of different calibers, and smaller points for working over filiform bougies. The size of the shaft is No. 8 of the American scale—with the blade elevated to its full height it cuts to a size equal to 16 American (24 French). The bulbs are four in number, and of the sizes Nos. 12, 14, 16, and 18 American. With a bulb attached, and the blade fully elevated, it cuts to a size about five numbers larger than the bulb.

Of the two accompanying cuts the upper one represents the instrument with a bulb (*c*) attached, and the blade (*d*) elevated. At (*a*) is seen the end of rod connecting the blade with the handle, and terminating with screw and nut for regulating the cutting-depth of the blade. At (*b*) is a small knob attached to the movable rod, which, being pushed backward or forward, elevates or depresses the blade. The lower cut shows a section of the shaft terminating by a screw-thread, by means of which the bulbs and smaller points are attached.



In operating upon a stricture the instrument is introduced with the blade concealed within the shaft; when the stricture is felt and passed, the blade is pushed out, and the stricture cut through as the instrument is withdrawn.

This urethrotome is simple in construction, easy of operation, and much cheaper than some of the latest approved instruments. It is adapted for all strictures, from those of the smallest to the largest calibers.

My design of it was well executed under the direction of Mr. Stohlman, of the firm of G. Tiemann & Co.

ART. IV.—*Iodine in the Treatment of Intermittent Fevers.*

By Dr. J. W. WADSWORTH, Saltillo, Mexico.

SOME four years ago, while practicing in Texas, the writer commenced the use of iodine as an antiperiodic, in lieu of quinine, and so well satisfied was he with the results obtained, that on his removal to Mexico, shortly thereafter, he continued its use. In that section of country, where periodical fevers are endemic, and which has but recently been visited by an epidemic unprecedented in violence, a statement of this method of treating intermittent fever may be of interest to your readers. When it is considered that attacks of malarial fevers in warm climates are frequently grave, and must be promptly met by a specific before they reach a malignant form, it must be granted that the following results of the iodine treatment corroborate the conclusion of Dr. Willibrand ("Virchow's Arch.," xlvii., 243), that *in iodine we possess a specific remedy for malarial diseases* equal to cinchona, and in one respect superior, since fewer relapses occur in the cases of cure effected.

During the last fall and winter months a very severe epidemic of malarial fever has prevailed in Saltillo, comprising all types, quotidians, double quotidians, tertians, and quartans. Quinine, which formerly sold for five dollars per ounce, was worth from ten to twenty dollars, and was retailed at sixpence per grain, being entirely out of reach of the poor, whose name is legion.

During the four months of October, November, December, 1878, and January, 1879, the writer treated over three hundred cases of intermittent fever, of which he has recorded two hundred and sixty cases, as follows: October, 28; November, 111; December, 64; January, 57—Total, 260; many of these being chronic cases extending over various intervals of weeks and months. In the severe cases from ten to fifteen grains of quinine, in two doses, were generally given during the apyrexia, and immediately followed by the comp. tincture of iodine in doses of x to xv ♏ thrice daily; in the severest cases the following formula was used:

℞.	Liq. potass. arsenitis,	ʒj.
	Tinct. iodinii comp.,	ʒij.
	Tinct. serpentariæ, }	āā ℥jss.
	Syrupus simp., }	
	Aquæ font. ad	℥vj.

M. Sig. A tablespoonful thrice daily, after meals.

In every case the paroxysm was arrested within twenty-four hours, and the twelve doses, lasting four days, were sufficient to guarantee the cure, with the exception of eight relapses, six being on the *fourteenth* day, one on the *twenty-first*, and but one on the *seventh.*

In not a single instance, though under the most miserable hygienic surroundings, did there occur a failure to effect an immediate cure, when the medicine was taken as directed.

Quinine and arsenic have often failed the writer, but iodine never; but nevertheless, owing to the malignancy of the fever, the poverty of the people, and the necessity of prompt cure, it was thought prudent to make assurance doubly sure, by reinforcing the iodine with a drachm of Fowler's solution in the severest cases.

Clinical Lecture,

By Fessenden N. Otis, M. D., Clinical Professor of Venereal Diseases in the College of Physicians and Surgeons, New York, Surgeon to Charity Hospital, Blackwell's Island. Reported by P. Brynberg Porter, M. D.

FOLLICULAR RUPTURE OF THE URETHRA DUE TO INFLAMMATORY ACTION RESULTING FROM THE PRESENCE OF STRICTURE.

Gentlemen: The patient to whom I now call your attention is twenty-eight years of age. He was born in Ireland, but has been in this country for the last eighteen years. He is unmarried, a laborer by occupation, and was admitted to the Hospital three days ago. His family history is moderately good. In 1863 he had an attack of typhoid fever, and in 1875, while at New Orleans, suffered from intermittent fever. In 1866 he had gonorrhœa; since then he has suffered from gleet. He has for a long time been a hard drinker, but has not taken much of late. About a month since he noticed a fresh discharge from the urethra, although he had had no recent venereal connection. He says, however, that just before this discharge made its appearance he had been drinking spirits and beer very freely for several days in succession. The difficulty resembled an ordinary gonorrhœa, and he suffered a good deal from burning, in passing his water; although he had no difficulty in urinating.

He further states, that some six days since, on going to bed, he urinated without the least difficulty. After a comfortable night's rest he arose, and attempted to pass his water as usual, but found himself entirely unable to do so. During the day, suffering with pain and alarm, he called upon a surgeon, who readily inserted a catheter into his bladder and relieved him. This disability continuing, he was relieved in the same manner by catheterization, on the second and also on the third day, when he presented for admission into this hospital, complaining of pain in the perinæum and inability to urinate.

He was found to have a distended bladder, the line of dullness extending fully two inches above the pubis, and was unable to void a drop of urine. An ordinary gum catheter was passed without difficulty by the house surgeon, and the bladder emptied of nearly two pints of urine. A distinct but diffuse swelling was found in the perinæum, which was also the seat of some tenderness and pain, as complained of by the patient. Since then he has been on his back, with warm poultices to his perinæum, and has had his urine drawn regularly twice a day.

This is the sixth day since the occurrence of his retention, and the third of his stay in the hospital. We now find him considerably below par in his general condition, and presenting pretty clear evidences of chronic alcoholism. His tongue is furred and tremulous; his skin is dry, dusky, almost jaundiced; his temperature somewhat elevated (101° Fahr.); his pulse is quick, not strong, and about 100.

The moderate febrile disturbance present is readily accounted for by the presence of the phlegmonous swelling in the perinæum, previously referred to. This is seen to extend from the attachment of the scrotum to near the anus, fully an inch and a half in height, inflamed, tender to touch, hard and inelastic, yet not imparting to the fingers a sense of fluctuation at any point. The evidences are quite clear that an inflammation has been going on in the tissues of the perinæum for several days, and that suppuration is imminent, or has already occurred, although not yet to the extent of presenting the physical signs which we usually rely upon to determine the presence of a localized accumulation of pus, viz., fluctuation.

The depth and course of the tumor would indicate that the inflammatory process is here deeply seated, and is not a superficial phlegmon from general causes. There is no history of any local injury. The first intimation of trouble was *not pain*, such as initiates a simple cellulitis, but sudden and complete retention of urine. Then came a "feeling of fullness," as the patient describes it, which did not bring with it any sensation of pain until the following day, and even then no external swelling was recognized.

If, you may ask, the evidences are here opposed to the idea of an idiopathic origin of the trouble, how shall we be able to explain the matter? The closure of the urethra, undoubtedly from a mechanical cause, was the first sign of trouble. This leads us to consider whether the cause might not have been in the urethra itself. Impaction of a calculus or the sudden swelling of mucous membrane from urethral irritation may be suggested, but the easy passage of an ordinary catheter is opposed to this; and besides, the cause which closed the urethra continued to act, and was soon manifest as a progressive inflammation, involving, in a short time, all the perineal tissues. What, then, is the cause of this sudden local trouble and subsequent inflammation?

We are assisted in our answer by reference to the progress of events in similar cases. When allowed to take their own course, the result, almost invariably, is an acute abscess. This, when opened, discharges pus more or less unhealthy in character, and presents evidences of admixture with urine in greater or less quantity; and, in a period varying in different cases, from the date of the opening of the abscess (either spontaneously or by operation), up to two or three weeks, results in a urinary fistula.

A rupture of the urethral wall has been followed by the leakage of urine into the surrounding cellular tissue. Sometimes this is so slight that its only effect is to set up a low grade of inflammation, which produces but a limited œdema. Again, in other cases, the urinary infiltration is sudden, and so extensive that nothing but the promptest surgical measures will save the patient from speedy death. The occurrence of a minute urinary extravasation would explain satisfactorily the trouble in the present instance. But how are we to account for a perforation or rupture of the urethral walls in a case like the present, when the urethra is sufficiently free from stricture to permit the easy passage of an ordinary catheter? We are accustomed to associate urinary fistulæ with the results of external violence, or with the rupture of the urethra behind a close organic stricture, occasioned by pressure of urine from urgent action of the *detrusor urinæ* muscles.

Dittel, of Vienna, was the first to demonstrate, through *post-mortem* examination, that in certain cases, when death occurred from urinary extravasation, the opening in the urethra, by which the urine escaped, was *through a single small ulcerated follicle of the mucous membrane lining the urethra.* He showed that a simple folliculitis might result in perforation of the urethral walls, and that follicular inflammation and ulceration was an accident very likely to occur upon a previously diseased condition of the urethra, such as is manifested by the presence of mucoid shreds in the urine. Dittel did not appreciate fully the significance of these shreds, which are washed out of the urethra in urination. He recognized the fact that these mucoid shreds, which he describes as "inspissated mucus, sometimes single, sometimes ring-shaped," occur usually in persons previously the subject of gonorrhœa, and he claimed that they were evidences of *a diseased condition of the urethra, predisposing to follicular ulceration.* Since his recorded observations, however, it has been demonstrated, by means of the urethrometer and the bulbous sound, that these shreds of mucus are the accumulations behind *stricture*, which often encroaches but slightly upon the urethral caliber. It is readily seen that such slight strictures as would permit the easy passage of a catheter might still be sufficient to catch the organic débris, in the urine of a person suffering with lithiasis, and thus form a point of local irritation, finally involving one or more follicles in suppurative inflammation. Or even from the increased urinary friction, at a point made salient by slight stricture, a similar folliculitis might ensue, which, once initiated, should finally result in a perforation of the urethral walls.

Let us examine the urethra carefully in this case, with the view of ascertaining whether or not such a stricture is present.

The easy passage of the catheter does not prove its absence. We must first ascertain the normal dimensions of the canal; then, and not until then, are we prepared to determine whether stricture is present or absent. The proportionate relation of the size of the penis to that of the urethra is ascertained to be as a rule about as $2\frac{3}{5}$ to 1. Here we find the penis measuring $3\frac{1}{2}$ inches in circumference. This multiplied by 25 reduces it to millimetres—in round numbers $87\frac{1}{2}$—divided by $2\frac{3}{5} = 34 +$. The urethra would then be 34 m.m. in circumference. I will say, however, that this proportionate relation was discovered by frequent use of the urethrometer (which registers size in *millimetres*). A large urethra was observed to be associated with a large penis, *as a rule*, and *vice versa.* Measurements of the penis were made with the ordinary English tape-measure, and thus it was found that the penis of 3 inches circumference was associated with a urethra of 30 m.m. circumference; a $3\frac{1}{4}$ inches penis with a 32 m.m. urethra; a $3\frac{1}{2}$ penis with a 34 m.m. urethra; and so on, the urethra increasing 2 m.m. in circumference for every $\frac{1}{4}$ inch increase in the circumference of the penis. The attempt to reduce this comparison, of millimetres with inches, makes an ugly fraction, and I usually content myself with a formula which resulted from the accident of having two sorts of measures in my clinical work. Here, then, we have a urethra of 34 m.m. The meatus, however, is found by examination with the bulbous sound to be only $22 +$. For further exploration the urethrometer will be required. This we introduce readily to the bulbo-membranous junction. It is easily expanded to $34 +$ without pain to the patient. On drawing it forward for an inch, its progress is arrested, and it requires to be turned down to 24 before it can be moved. Examining the figures on the shaft of the urethrometer, this point is seen to be at 5 inches from the meatus. It is hugged closely for half an inch and is again free. I now turn the screw until the indicator marks 34 on the dial—when the patient begins to complain. At this size it comes forward easily to $\frac{1}{2}$ inch from the meatus, where its size requires reduction to 22 before it will emerge. If we now accept 34 as the normal caliber of the urethra in penile portion, we have here demonstrated two prominent points of contraction or stricture; one at from 4½ inches to 5 of a value of 10 m.m., and one at the orifice of a value of 12 m.m., the interval between these points registering 34. It is then very evident that two important strictured points are present—the one at the meatus, and the other at 4½ to 5 inches. The deeper one, although permitting the easy passage of the largest instrument which can be passed through the meatus, is demonstrated to be a local point of obstruction exactly like that described by Dittel, and behind which shreds of mucus accumulate—are washed out in urination, and thus afford reliable diagnostic information of stricture; stricture which suggests the liability of follicular inflammation and ulceration, and a possibly resulting extravasation of urine. In whatever way we explain the cause or causes which involve urethral follicles in ulcerative trouble, which sometimes goes on to perforation and urinary infiltration, we must accept the fact, as proven by *post-mortem* examination and ample clinical evidence.

Retention of urine, followed by perineal swelling and inflammation, independently of external violence, especially when occurring in conjunction with a urethra damaged by previous attacks of urethritis, points clearly to the occurrence of such an accident as the one alluded to, viz., follicular perforation of the urethral wall and extravasation of a greater or less amount of urine into the surrounding cellular tissue.

In the present instance, the conditions past and present, as ascertained by the history of the case and by our examination, warrant the conclusion that this phlegmon is the result of a follicular ulceration of the urethra, through which, to a limited extent, urine has escaped. In this view of the matter but one course is open to us, but one way is left by which we can arrest the difficulty and save the patient from the impending danger of an extensive and perhaps fatal extravasation of urine; and this is to incise the inflamed tissues freely down to and into the urethral canal.

The patient will now be etherized, preparatory to the performance of this operation, which is appropriately termed "*External Perineal Urethrotomy.*"* In the mean while I will endeavor still further to impress you with the importance and correctness of the proposed operation in the present and in similar instances, by citing a case published some time since in the hospital reports of one of the medical journals: "A patient came in complaining of retention of urine. He was readily relieved by the catheter. He had a painful swelling in his perinæum, which was duly fomented for several days. The swelling increased; fluctuation was finally appreciated, but not thought to be sufficient to warrant incision, and it was determined to defer this procedure until the following day. During the night an extravasation of urine took place, extending into the cellular tissue of the scrotum, penis, and abdomen. On the occasion of the surgeon's visit the next morning free incisions were made into the regions of extravasation, and every care taken to counteract the effect of the *accident* (?); but sloughing was extensive and the patient sank under its effects, and died a few days after." Such a swelling, associated with a *close urethral stricture*, would at once have suggested the probable nature of the trouble; but the easy passage of the catheter led to the fatal error of supposing that the phlegmon was not of urethral origin.

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* Gouley.

A series of cases was reported in the "London Medical Times and Gazette," of January 4, 1873, where extravasation of urine and perineal fistulæ had occurred, *in which no stricture was found*, No. 8 or No. 9 English catheter being readily passed in each case. The same verdict might have been rendered with equal propriety in the case before us, viz., retention of urine and perineal abscess, and no stricture found with No. 8 or No. 9 English catheter. But, on examination with efficient instruments, the urethra has here been proven strictured to nearly one third of its normal caliber, at a point corresponding to the perineal swelling. With the same means of diagnosis here made use of, have you a doubt that stricture would also have been made out in the six cases above reported? I have not—nor have I a doubt but that extravasation would have been prevented in those cases by a *timely* external perineal urethrotomy such as we are now about to perform. Perineal swelling, without external injury, as a rule, means urinary infiltration to a greater or less extent, and the only safe course is to make a prompt incision into it, and at least down to the urethra. Also examine for and locate what you will be quite certain to find, namely, stricture of greater or less extent, at the urethral orifice, as well as at some deeper point, and remove these obstructions at the earliest available moment. If this is done promptly it may not be necessary to incise the urethral walls. Pressure of the urine, during urination, at the point where the urethra has been perforated, is so much lightened by the removal of anterior obstructions, that healing of the perforation may soon take place. The incision meanwhile not only gives exit to accumulations of pus or other morbid fluids, but affords security against general urinary extravasation. If the strictures are not removed, however, and the excision has not been carried into the urethra, the probabilities are greatly in favor of a return of the trouble after the abscess has filled up and the external wound has healed. The operation will then require to be repeated under additional and perhaps most serious disadvantages. An instructive case in point may be found on page 296 in the work on "Urethral Stricture," published by Putnam's Sons. Several of Dittel's cases are also to be found in connection with the same.

Operative measures will be initiated here by dividing the meatus to the full size of the urethra, viz., 34 +. This accomplished, I pass a large grooved sound readily into the bladder. The instrument is held, lightly but firmly, directly in the median line, as a guide to the urethra, when we approach it. Now the parts having been shaved, with this broad pointed scalpel I make a deep incision into the tumor, exactly following the raphe, from a point at the junction of the scrotum with the perinæum, downward, to within an inch of the anus. This has divided the integument and superficial fascia and gone well into the swollen cellular tissue. Another incision in the same line carries us through the deep layer of the superficial fascia, and gives exit to a small quantity of pus and bloody serum which has been confined beneath it. Now, with my finger, I distinctly feel the sound in the urethra. We might have paused at this stage of the proceedings, having laid open the abscess and emptied it of its contents. But there was good reason to believe the origin of the trouble to be a perforation of the urethra, and that the cause of it, the stricture, previously demonstrated at five inches, still remained capable of continuing the mischief already commenced. I therefore carefully continued my incisions until the point of the scalpel entered the groove of the staff. This accomplished, the urethra was laid open for the space of half an inch, with the intention of giving free vent to urine during urination, and thus allow the perforation, through which the infiltration occurred, to close. This is doubtless so small that we are not likely to find it at present, and it may have been included in the incision, or be situated at a point close to the stricture. In either case, after the removal of the stricture, it will probably heal within a few days. Now introducing the 34 bulb into the incision, as I push it toward the meatus, it is arrested at about 1 inch. Introducing it at the meatus it passes readily to 4½ inches. This space between 4½ and an inch anterior to the incision is the strictured point which is believed to have caused all the difficulty. I now introduce a narrow probe-pointed bistoury and divide the stricture on the superior wall of the canal completely, as shown by the easy passage of a full-sized bulb through the canal and out of the perineal opening.

Reëntering the canal through the incision, I pass the instrument readily backward into the bladder, thus clearing up any suspicions of stricture in this locality. The after-treatment in this case will be very simple, and will consist in: first, raising and supporting the testicles by a broad band of adhesive plaster laid upon the inner surface of the thighs. This is placed so as to form a sort of shelf upon which the testicles may rest and the scrotal tissue be free from any danger of urinary infiltration. Secondly, in keeping the parts clean and well disinfected, by syringing the wound gently with a 40-grain solution of carbolic acid about three times a day. The introduction of a small soft-rubber catheter through the wound and into the bladder serves to draw off the urine without discomfort to the patient, and prevents its contact with the freshly wounded tissues. This catheter may be retained for the first 48 hours to advantage; after which, the patient may void his urine at will upon a large sponge provided for the purpose. A pledget of lint soaked in the carbolic solution and changed after each urination will be all the dressing required. In all operations on the deep urethra I am in the habit of following them by the introduction of a suppository, composed of 10 grains of quinine and $\frac{1}{4}$ grain of morphia, in order to counteract the nervous shock likely to be occasioned by the operation, also to prevent the accession of urethral fever.

Clinical Records from Private and Hospital Practice.

I.—*Conservative Surgery in Injuries of the Scrotum.* By C. G. Hubbard, M. D., Hornellsville, New York.

On June 7, 1877, I was summoned to the distant town of F—— to see a friend supposed to be on the eve of dissolution. I found him in bed delirious and maniacal, in which condition he had remained for four days. His pulse was seventy-five per minute, but it was difficult to ascertain its force on account of the very tense rigidity of the tendons. He was covered with a sticky, cold, clammy sweat. I ascertained that erysipelas had attacked the scrotum ten days previous, and had rapidly invaded and destroyed most of it before it could be checked; but the line of demarkation had formed, and the sloughs were just beginning to come away. The attending physician was giving minute doses of arsenic and belladonna. I advised the use of bromide of potassium in large doses. Thirty grains of it were given at one dose, in two ounces of water. Within an hour after its administration the patient fell into a quiet sleep, which continued for several hours, and from which he awoke fully conscious. There was no subsequent delirium, and from this time his general health improved rapidly.

After a few days the sloughs had all become detached from the scrotum, leaving its edges healthy, and in a granulating condition. There remained the problem to be solved: how to restore the covering to the testicles—for all of the scrotum had been destroyed, down to the tunica vaginalis, from the perinæum upward for three inches, to within three fourths of an inch of the upper end of the glands, and full four inches from side to side, or twelve square inches of surface in all. Four plans presented themselves for consideration: 1. Endeavor to stretch the remainder of the scrotum gradually until it could be attached to the perinæum; 2. Semi-castration to obtain skin sufficient to cover the remaining gland; 3. Cover the testicles with a flap from the thigh; 4. Form an artificial temporary covering, trusting that the tunica vaginalis would in time be converted into skin. The last project was abandoned when it was remembered that the tunica vaginalis was a duplicature of the peritonæum. The possibility of a serous membrane being changed into skin was too doubtful to warrant the attempt. The plan of gradually stretching the scrotum was finally selected, as failing in that would not prevent the other two from being tried. Adhesions were found to exist between the upper third of the glands and the remaining skin which covered it. These prevented the glands from being pushed up into the inguinal canal out of the way. Two hours were spent in applying the first dressing. By removing all of the hair from the parts, and extending slips of adhesive plaster from the coccyx below to the umbilicus above, the denuded surface could be partly covered with the scanty scrotum. Dressing the wound daily, and drawing the remnant of the skin further down over the glands, it was possible, by the fourth day, to attach it by sutures to the perinæum. From this time the healing progressed rapidly. Within one month the wound was completely closed, but adhesions remained between the anterior surface of the glands and the scrotum; but these all disappeared before a year passed, and now no inconvenience is experienced from the parts being cramped. The features of peculiar interest in the case were (1) the ease with which the scrotum could be stretched until it occupied fully five times its former extent, and (2) the amount of rough handling which the glands tolerated with their surfaces in a granulating condition, so that the least touch of them would cause bleeding.

In September, 1877, I was called to see Mr. A. E., aged forty. I found him in bed, with his right scrotum greatly distended with a fluid. I learned that, when a mere boy, he had fallen from a tree and injured his right testicle, which was inflamed for some time, since which it had remained larger than its fellow, until 1861, when in the army the scrotum suddenly became distended from an effusion into its cavity. He had repeatedly refused to have it tapped. Several times during the sixteen years which have elapsed since that time the septum between the two cavities has ruptured, allowing the fluid to escape into the left side of the scrotum, when the tumor would become flabby and soft, instead of being hard and well defined. A few days' rest in a recumbent posture would produce absorption of a portion of the fluid, and allow him to go about his business by wearing a suspensory bandage. He had noticed that the walls of the scrotum had increased in thickness after each one of these attacks, until at present they seemed to be fully one half of an inch thick. I used soothing lotions to the parts, and after a few days lost sight of my patient. About the 1st of November I was called to see him again, and found the tumor in the same condition as when I first visited him, except that it was impervious to transmitted light. From the root of the penis to the lower end of the scrotum measured twelve inches, so that as he lay in bed it extended to within one inch of his knees. A high degree of inflammation was present. I advised drawing off the fluid. After much hesitation he consented. I introduced a large-sized trocar, and drew off sixteen ounces of a bloody serum. With a Davidson syringe the cavity was washed out several times with a two per cent. solution of carbolic acid, until the injected fluid came out clear. For a number of days the inflammation was quite severe, but was kept within bounds by local injections of morphia, and lead and opium washes. The inflammation extended up the spermatic cord to the internal ring, and it was feared that the peritonæum would become affected, but it did not. The bowels were kept loose and the local treatment vigorously maintained, when after a few days the unorganized thickened parts of the scrotum, which had been accumulating for years upon its inner surface, began to break down, and every day there could be pressed out from a teaspoonful to a gill of a sero-sanguinolent matter. A mild irritation was kept up for two weeks by the injection occasionally of the carbolic acid solution. If the irritation was too severe, and yet the cavity needed disinfecting, a solution of boracic acid was used in the place of the carbolic acid. All injections subsequent to the first were made with a hypodermic syringe through an aperture just large enough to admit the needle of the syringe. Air was thus prevented from entering the cavity, except upon two occasions, when the effects of the contact of the air with the interior of the cavity were not such as to warrant a repetition of the experiment. After the products of the thickened scrotum had nearly all been broken down into liquid and been discharged, there remained a huge amount of thin, flabby scrotum, which was entirely useless. I then commenced reducing its size by hot-water applications, which soon shrank it to a condition where adhesive plasters could be applied, when the reduction proceeded rapidly and adhesions formed between the anterior surface of the testicle and the scrotum. Six weeks from the time the scrotum was tapped the patient was discharged with no more covering for the testicle than was needful, and that of normal thickness.

The interesting features of the case were: 1. The enlarged and inflamed condition of the testicle. 2. The combination of hæmatocele with the hydrocele. 3. The unusual size of the distended scrotum with the great thickness of its walls. 4. The extreme sensitiveness of its interior surface rendering unadvisable the injection of any but the mildest irritants, which, however, effected a complete cure, so that there is no sign of a return of the dropsy after a lapse of eighteen months. 5. The successful use of hot water in reducing to its natural size the enormously distended scrotum. These two cases are cited to illustrate the value of conservative surgery in dealing with affections of the scrotum. Owing to its peculiar structure it can be rapidly distended or contracted by mild measures.

II.—*Case of Ovariotomy.—Recovery.* By JAMES B. HUNTER, M. D., Surgeon to the New York State Woman's Hospital, etc.

C. M., twenty-five years of age, married eleven months, but never pregnant, applied to me for advice July 25, 1872. Menstruation having ceased for two months, she supposed herself pregnant, and complained of severe pain in the region of the left ovary.

On examination I detected, on the left side, an ovarian tumor the size of a small orange. The uterus was of normal size. The patient was advised to wait, and report again in two months.

At the end of that time the tumor was much larger, and an operation was proposed, but the patient preferred to wait; and three months later reported again. The tumor was then obscured by ascitic fluid. In March, 1873, she entered the Woman's Hospital, and on April 3d two gallons of ascitic fluid were removed by the aspirator, and the patient went home. She was tapped again May 10th, and was then ready to submit to operation, but, as there was septicæmia in the hospital, Dr. Thomas advised that the operation be postponed.

June 21st I was called to see the patient in a down-town tenement house, and removed twenty-eight pounds of ascitic fluid by the aspirator. I tapped again July 17th, and as the patient was failing in strength and courage I advised the removal of the tumor as soon as possible. Accordingly, August 9, 1873, assisted by Dr. H. F. Walker, C. S. Ward, W. Gill Wylie and W. T. Bull, I proceeded to operate in the usual manner. Having made an incision about three inches in length, and finding no adhesions, I introduced a large trocar and endeavored to evacuate the contents of the cyst. The fluid was dark in color and so viscid that it did not flow freely. The cyst was then opened, the hand introduced, and a number of smaller cysts, filled with dark, gelatinous material, broken up and scooped out. This done, the sac was drawn out and cut off. The pedicle was small, but too short to allow the use of a clamp. It was therefore tied in two sections with a twisted silk ligature and dropped into the abdominal cavity. There was little hæmorrhage, but some of the fluid had entered the cavity, which was carefully sponged out. The right ovary having been examined and found free from disease, the abdominal wound was closed with silver-wire sutures, and long strips of adhesive plaster were placed round the abdomen to lessen disturbance in case of vomiting.

The sac and contents weighed about thirteen pounds.

The patient rallied well and was quite comfortable at 7 P. M.

August 10th, 10 A. M.—Pulse 104; temperature 99½°. 10 P. M.—Pulse 100; temperature 101°. *August 11th*, 11 A. M.—Pulse 90; temperature 99⅘°. 11 P. M.—Pulse 96; temperature 99°. *August 12th*, 10 A. M.—Pulse 94; temperature 99½°. 10 P. M.—Pulse 90; temperature 100½°. *August 13th*, 10 A. M.—Pulse 90; temperature 99⅖°. 6 P. M.—Pulse 90; temperature 99⅘°. *August 14th*, 11 A. M.—Pulse 88; temperature 100°. 11 P. M.—Pulse 82; temperature 99⅖°. Removed all the abdominal sutures. Union perfect. As there was distress from flatulence, the rectum tube was used, with good results.

August 15th.—Pulse and temperature continued normal from this time. Some fluid detected in the abdominal cavity, which, together with flatulence, caused much distress and dyspnœa.

August 20th.—The fluid had increased in quantity, and Dr. Walker agreed with me in the propriety of removing it, though there were no symptoms of septicæmia at any time. August 26th, with the assistance of Dr. Walker, twenty-four pounds of dark, clear, inoffensive fluid were removed by the aspirator, to the great relief of the patient.

The subsequent convalescence was slow but uninterrupted by any unfavorable symptoms. September 7th I left the patient in charge of Dr. C. Cleveland. She was not able to sit up until two months after the operation. About that time a small abscess formed in the abdominal parietes, below and to the left of the umbilicus. This discharged externally, and left a fistulous opening from which there was a slight oozing of clear, glairy fluid for several months.

One year after the operation the patient was well, and stouter and stronger than she had been for several years; and in January, 1875, she continued to enjoy good health.

There was nothing worthy of remark in the case above reported, except the fact that the operation was performed in a crowded tenement house, during the hottest part of the summer season, and with most unfavorable hygienic and social surroundings.

It is also worthy of note that the entire peritonæum, as far as it was exposed during the operation, was studded with minute white spots, as though it had been sprinkled with white pepper, giving it a peculiar granular appearance which I do not happen to have seen in any other case of ovariotomy among nearly two hundred I have witnessed.

III.—*Laparotomy—Removal of Pediculated Uterine Fibroid.—Recovery.* By James B. Hunter, M. D., Surgeon to the New York State Woman's Hospital, etc.

M. R., aged thirty-three years, was admitted to the Woman's Hospital, January 31, 1876. She had been married ten years, and had had five children and three abortions. Four years earlier, after a confinement, she noticed a small "lump" in the left side of the abdomen. One year before admission she became pregnant, and at the fourth month began to have pain in the left side. She was also much larger than at the same period in former pregnancies. She could feel the tumor as a mass distinct from the uterus. At eight months she was delivered of a still-born child. Pain in the left side and left limb had been constant from the fourth month, but ceased after delivery, though the tumor continued to increase in size. The abdomen was thirty-seven inches in circumference, measured over the tumor.

Saturday, February 12, 1876, at the request of Dr. Thomas (whose assistant I then was), and assisted by Dr. C. S. Ward and the House Staff, I performed laparotomy in the usual manner. Having made an incision five and three quarter inches long in the abdominal walls, and evacuated a large amount of ascitic fluid, I was able to insert the hand and examine the tumor satisfactorily. It proved to be a solid fibroid, of the size of a large cocoa-nut, attached to the uterus by a rather short pedicle. Thomas's clamp was used, close to the uterus, and the pedicle severed. The abdomen was then thoroughly sponged out, and the incision closed by eleven silver sutures, a glass drainage-tube being left in, close to the clamp. The operation occupied thirty minutes.

February 13th.—There was good reaction after the operation. Pulse 96; temperature 102°. Morphine enough given hypodermically to relieve pain.

14th.—Pulse 80; temperature 104°. *15th.*—Pulse 78; temperature 102¼°. *16th.*—Pulse 78; temperature 102¾°. *17th.*—Pulse 78; temperature 101¼°. *18th.*—Pulse 78; temperature 102½°. *19th.*—Pulse 74; temperature 101½°. *20th.*—Part of the sutures were removed.

From this time the patient progressed slowly toward recovery, continuing weak. The clamp was removed February 23d, when the pedicle was drawn an inch and a half below the level of the integument, but the space left was gradually filled, the patient recovered her strength, and was discharged March 29th.

The following is the report of Dr. Maxwell, the pathologist to the Woman's Hospital:

March 6, 1876.

James B. Hunter, M. D.

Sir:—As per request I have carefully and repeatedly examined the specimens taken from the solid tumor removed by you at the Woman's Hospital operation, February 12, 1876.

1. As to origin.—The piece of pedicle removed bears along one border a portion of the Fallopian tube near its fimbriated extremity, although the latter is not present in the specimen under examination—the remainder of the pedicle is a piece of the broad ligament bordering the Fallopian tube. Thin sections of the outer portion of the latter show transverse and oblique sections of about six to eight rounded and ovoid spaces, with a moderately thick connective-tissue wall lined by glandular epithelium. These resemble in structure the tubes of the parovarium. Besides these nothing was seen excepting the normal structure of the broad ligament and Fallopian tube. Examination of the tumor at its point of attachment

gives the same result as elsewhere. I should think its point of attachment was near one cornu of the uterus, and from its growth it may have raised and appropriated the posterior fold of broad ligament.

2. The epithelium covering of the tumor appears to be of the small cuboidal variety of epithelial elements.

3. The general structure of the mass of the tumor is composed of bands of fibrillar connective tissue, interlacing in various directions, so that, in whatever direction the cuts are made, they include longitudinal, oblique, and transverse sections of the fibrillar trabeculæ.

This holds true for the whole tumor excepting near its periphery, where they generally run perpendicular to the surface.

It has a connective-tissue basis substance. The tumor throughout is unusually well provided with nuclei—these in some places are collected into little clusters. Excepting these portions, which, when fresh, appeared light pinkish, the whole structure is undergoing granular and fatty degeneration—in the central portions we see the results of this degeneration in the formation of cysts of varying size (softening cysts), and of shreddy appearance and soft consistence. I have not found either sarcomatous elements or smooth muscle fibers, although in a few places it contains cells bordering on each.

Histological classification would place this tumor among the fibromas—Fibroma, unusually rich in nuclei, and undergoing fatty degeneration, containing softening cysts.

Very respectfully yours,

E. A. Maxwell, M. D.

The woman has since been twice pregnant, and has given birth to living children.

Notes of Hospital Practice.

MOUNT SINAI HOSPITAL.

Sarcoma of Wrist.—A case of sarcoma of the wrist presented the interesting feature that its origin could be traced to the striking of the hand upon the counter. The patient was an auctioneer, aged twenty-seven, and, in attending to his business, he was accustomed to strike the side of his hand upon some hard body. The disease began as a nodule on the external surface of the wrist six months before admission. It grew slowly for five months, but then became painful, and increased rapidly in size. The tumor extended from the metacarpo-phalangeal articulation of the little finger upward for an inch above the wrist. It was nodulated and softened at one point. The amputation was performed at the beginning of the lower third of the forearm by Dr. H. F. Guleke, and the stump dressed by Lister's method. The stump was dressed twice, and at the end of two weeks it was completely healed.

Irritation of Sciatic Nerve—Treatment by Pressure.—A man received a gunshot wound fifteen years ago, which caused fracture of the femur. Two years subsequently he complained of pain and redness in the lower third of the leg. This lasted only for a few months at a time, but returned every year. At the time of admission to hospital an exostosis was noticed in the middle of the thigh, which was painful on pressure. The leg was red and swollen. There was also equino-valgus talipes. Both the galvanic and faradic current caused much pain. Any attempt at walking increased the pain decidedly. Pressure on the leg by means of an elastic stocking was tried, and in a week after its use the patient was able to walk with ease. An appropriate talipes shoe was procured, which so improved his condition that he considered himself cured, and left the hospital. He said that he had not felt so well since the injury was received.

Malarial Fever—Fibroid Phthisis.—The case of malarial fever reported last month, and which proved so difficult to control, is yet under observation. The temperature is nearly normal, but fibroid phthisis there has developed. The history of the case, with persistent high temperature, seems to indicate that the malarial fever was the direct cause of the disease in the lungs.

CHARITY HOSPITAL.

Diabetes—Treatment by Salicylic Acid.—A man in hospital suffering from diabetes was given salicylic acid, in consequence of the good results reported from the use of that remedy. The condition of the patient was bad. He was very weak, and suffered greatly from thirst. The amount of urine passed each week was over 1,200 ounces. One hundred grains of salicylic acid were given daily for a week without any marked change upon the amount of urine or the quantity of sugar. At the end of that time the condition of the stomach was very much impaired, and extract of nux vomica was substituted. Under the nux vomica the urine fell to 900 ounces a week, and continued so for two weeks. The salicylic acid was again used, to the extent of two hundred grains in twenty-four hours. After two days it had to be discontinued. Sulphate of cinchonidia, twenty grains at night, was ordered. The condition of the patient was much improved, the thirst was lessened and the strength increased. It is difficult to say what result would have have been obtained if two hundred or three hundred grains had been used as advised by some observers. The case was one in which the remedy in such amount could not be tolerated, and one hundred grains a day, continued for a week, proved of no value whatever. A further report of the case will be made under the continued use of cinchonidia. The appropriate dietetic treatment was employed.

Tubercular Meningitis with Tuberculosis of Lungs.—A man, aged twenty-eight, who had formerly been an orderly in the hospital, was transferred to the care of the house physician, Dr. J. Tomlinson, on January 31, 1879. His previous history indicated that he led a dissipated life, and had contracted syphilis. When he became a patient he complained of an indefinite variety of symptoms, and, as malarial poisoning was suspected, he was given quinine. The drug caused vomiting and distress, with a certain amount of delirium. He suffered also from severe pain in the side, which was considered to be pleuritic, and for which a blister was ordered, which relieved the pain. Headache, nausea, and nervousness were prominent symptoms. His eyes had a wide, staring expression, and he was so hyperæsthetic that he winced with the slightest touch. The pulse was slow and full, and continued so till he died. The temperature varied from 98½° to 100°: the diagnosis of malaria was decided upon, and quinia continued in ten-grain doses. The effects were unsatisfactory. As nausea followed its use, it was interrupted and continued after having given cathartics. No good result followed its use. The following is the record of the temperature and pulse during the time he was under clinical observation :

	PULSE.		TEMPERATURE.	
	A. M.	P. M.	A. M.	P. M.
January 31	..	80	....	101½°
February 1	64	66	99½°	100½
" 2	76	76	99½	100½
" 3	88	88	102	100¾
" 4	84	80	101½	98½
" 5	92	80	101½	100½
" 6	88	..	101	....

During the last few days he passed into continuous delirium, and seemed as if developing mania. He complained of pain in the head. The eyes were rolling about and staring, but there was no strabismus. Before he died, exaggerated voice and breathing were found at the right apex posteriorly.

Autopsy—Head.—Dura mater and sinuses normal. Increased amount of cerebro-spinal fluid. Pia mater deeply congested. Over the convexity and along the course of the vessels a few grayish miliary bodies. At the base the pia was adherent to the brain, opaque and thickened. Numerous miliary bodies the size of a pin's head were found in the Sylvian fissure, and over the pons Varolii and optic chasm. A streak of yellowish exudation in left Sylvian fissure. The velum interpositum was dotted over with bodies similar to those found on the convexity and base.

Lungs.—Old pleuritic adhesions over both lungs. Tubercular deposit, occurring as separate grayish bodies, and as clusters scattered over both of the lungs, these tubercular masses being surrounded by lobular pneumonia in the red stage, causing complete consolidation of the lungs.

Liver.—Scattered throughout the parenchyma minute grayish bodies, similar to those found in the lungs.

Spleen.—The same condition as in the liver.

NEW YORK HOSPITAL.

Service of Dr. R. F. WEIR.

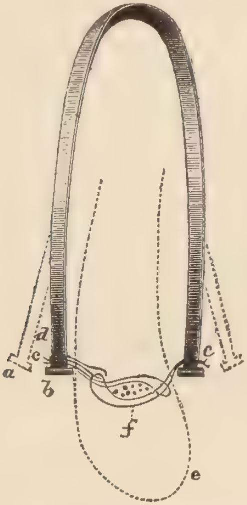
TREATMENT OF ULCERS.

The method found most serviceable has been a combination of that used by Lister with the india-rubber bandage of Martin. The ulcer is first washed with a 1–20 solution of carbolic acid, then covered with a piece of the "protective" oiled silk, over which is placed one or two larger layers of lint or felted paper, which has been previously dipped in a saturated solution of boracic acid. The whole is then covered with an elastic bandage, which is only changed when it becomes soiled by the discharge. Occasionally it is found better to take off the elastic bandage at night, but not the other dressing, which is then covered by a piece of impermeable tissue, such as thin gutta percha or waxed paper secured *in situ* by an ordinary bandage. In sloughy ulcers a layer of iodoform is put over the surface before applying the "protective." The rapidity of cure by the combination treatment has been found to be much greater than when either the Lister dressing or the rubber bandage is used alone.

VARICOCELE.

Two cases of quite large varicose enlargement of the spermatic veins were treated by a modification of the plan proposed by Mr. Wood, of King's College, London. It is best explained by a reference to the figure. In Wood's operation, tension upon the wire passed around the veins is made by a spring shaped like a horse-shoe, one arm of which, by means of a short foot-piece, rests against the scrotum, and through which the wires pass to be attached to the other arm of the spring. The effect of the pressure is sometimes to bury the foot-piece in the tissues of the scrotum, and to give rise to an abscess. To secure the same traction upon the encircling wires, Dr. Weir uses, it will be seen, a steel bent spring, the ends of which do not, however, touch the scrotum, but stretch by its elasticity wires (*c*, *c*) passed after Ricord's method around the veins (*f*). Moreover, instead of leaving in the wire, as suggested by Wood, until it cuts its way out, it has been found by experience best, after eight or ten days, to remove the wires, as by that time a sufficient amount of inflammatory action will have been excited to obliterate the veins satisfactorily. Inasmuch as this removal is attended at times with considerable difficulty, Dr. Weir has adopted the plan which originated at St. Luke's Hospital, of passing a reserve wire (*d*) through one of the loops before the latter is drawn around the veins, so that, when the encircling wire of one side is cut loose from the spring, the imbedded portion can be readily withdrawn from the other side by means of this same reserve wire, and then the remaining wire, being thus set free, can also in its turn be removed without difficulty.

Fig. 1.



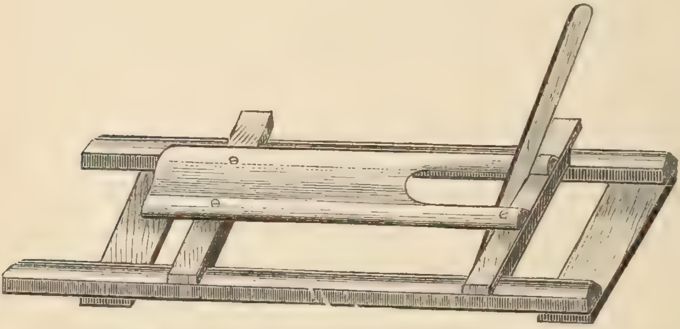
Dr. Weir's Variococele Spring.

In the cases referred to, the wires were in this way removed on the seventh and eighth days respectively, and the results obtained were satisfactory. The patients have been seen several times since leaving the hospital, and no relapse has occurred. Notwithstanding the apparently trifling nature of the operation, antiseptic dressings were resorted to.

FRACTURES OF THE THIGH.

Much difficulty has frequently been encountered, in the treatment of fractures of the thigh by means of Buck's extension apparatus, in keeping the foot upright. The natural tendency to turn outward is so strong that the usual expedients of having the plaster strip on the outer side of the leg placed more posteriorly than on the inner side, or of having the cords attaching the foot-piece to the pulley and weight so contrived as to twist the foot somewhat in an inward direction, or of the use of sand bags, or of a loop of bandage over the foot, are often inefficient, and tax the patience of the surgeon to a severe degree. This trouble has lately been obviated by the use of a railroad foot-piece, which was devised by Volkmann, and is depicted in Esmarch's recent "Prize Essay on Military Surgery." It has, since it was introduced into use in the hospital by Dr. Weir, been slightly modified in having it extend a little further up the leg than in the original, and in having added to it a second bar or traveler.

Fig. 2.



A Modified Volkmann's Railroad Foot-piece.

A reference to the figure shows that it consists of a foot-piece fastened at a very slight angle to a leg-piece, which latter runs up to the top of the calf, and is cut away for the reception of the heel. To this leg-piece are attached two cross-bar sor "travelers," which, in turn, rest upon the apices of two parallel strips of beveled wood, in such a way as to afford the least possible contact and consequent friction.

Not only is the foot kept in position by the splint, but the comfort of the patient is materially enhanced by the greater freedom of motion accorded to him. This has been fully proved in the experience of twenty-two patients treated in this manner. The results of these cases of fracture of thigh, as to the weight employed and the ensuing shortening, are that in thirteen an extension of ten pounds weight was used; in six, fifteen pounds; and in three, five pounds. The shortening in two cases was nothing; in seven, one quarter of an inch or less; in five, half an inch; and in the rest it was not stated. In the later cases it was found that less than the ordinary weight sufficed to accomplish a satisfactory result. The measurements were made, as usual, by a steel tape, from the anterior superior spine to the inner malleolus. The splint has also been used with advantage in the treatment of compound fracture of the leg, etc.

SUTURING A TENDON.

The rule of the hospital is, in incised wounds, to approximate and hold together the divided ends of both nerves and tendons. The rule was followed in the case of a negro who had received, several days previously, an incised wound on the dorsum of the right hand, sufficiently deep to divide some of the extensor tendons. The wound had been closed antiseptically by the House Surgeon, and union had become fairly established, but Dr. Weir deemed it advisable, when the case came under his observation, to attempt the drawing together of the separated ends of the tendons, and therefore, under ether, he broke asunder the freshly united surfaces, and, on exploration, ascertained that the tendon of the extensor carpi radialis longior had been divided. The upper end of this was found to have retracted within its sheath one and a quarter inch; but, when seized with a forceps, it could be readily drawn down to, so as to be opposed to the distal end of the tendon, where it was held by means of two carbolized silk sutures. This material was used rather than catgut, as it was feared that the gut would melt away before sufficient union would occur to prevent subsequent retraction. The hand, after the antiseptic dressing had been applied, was bent upon the wrist, and secured in this position by a plaster-of-Paris bandage. The dressing was changed at the end of a week, when union was found to have taken place superficially, and the sutures of the tendons, which had been cut long to admit of their ready removal, with those in the integuments, were removed. The patient progressed satisfactorily, and had full use of his hand. After the suturing of the tendon, he experienced, for a day or two, considerable pain in the belly of the muscle.

FEMORAL ANEURISM CURED BY ESMARCH'S BANDAGE.

A second case of aneurism was successfully treated by elastic compression, after the method suggested by Walter Reid, in 1875. The aneurism was an idiopathic one, and involved the junction of the femoral with the popliteal artery.

It had only existed a few weeks, and interrupted instrumental compression had been resorted to, with decided benefit, prior to his entrance into the hospital. The tumor pulsated feebly, its walls were thick, and its size that of the doubled fists.

A delay of a few days showing that the pulsation was not diminishing, it was decided to resort to the elastic pressure as used by Mr. Ferguson, of Cheltenham Hospital, England;* and therefore a piece of rubber tubing was drawn around the thigh above the aneurism, sufficiently tight to stop the pulsation, without, however, bandaging the limb at all. This was left on ninety minutes, when it was removed and a Signoroni's tourniquet applied for two hours and forty-five minutes.

At the end of this time, no pulsation being detected in the tumor, the compression was abandoned, and a cure believed to have been effected by this simplified method of using pressure. But it was found, the next day, that the pulsation had recurred, though very faint in character. The tubing was again applied in the same way for one hour, and the tourniquet subsequently for sixteen hours; but failure ensued. It was afterward learned that the patient, in this trial, loosened the tourniquet slyly from time to time. So far, no anæsthetic had been resorted to, but in a third trial, eight days later, ether was given; the foot and leg were bandaged by a rubber bandage up to, not over, and above the aneurism, and the tubing tightly drawn around the limb in the middle of the thigh. This compression was kept up two and a half hours, when the tourniquet was applied, and retained two and a half hours longer; and to make assurance doubly sure, and also to avoid too much localized pressure, a broad elastic bandage (Nicaise's excellent tourniquet) was secured tightly around the thigh for five hours longer, making a total arrest of the circulation of ten hours, without any detriment to the limb save a little tingling of the foot, which passed off in twenty-four hours. The ether was kept up for two and one half hours only. The solidification of the aneurism was complete, and no pulsation was subsequently perceived.

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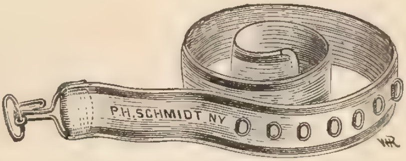
* "Lancet," September 28, 1878.

FIG. 8.



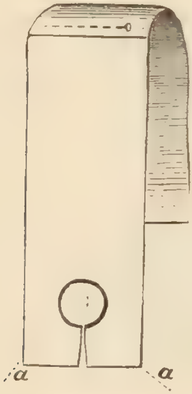
NICAISE'S ELASTIC TOURNIQUET.

A FOOT-SLING FOR FRACTURED LEGS.

In employing a fracture-box in the treatment of a leg broken in its lower third, it is a matter of some care to properly support the foot, and at the same time to avoid bringing too great and prolonged pressure on the tendo Achillis.

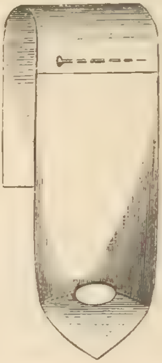
Properly, the direction is given that the oakum, jute, bran, or other material, used to form the bed upon which the injured leg rests, should not come lower than the malleoli; but, when this is done, the foot, supported by the usual figure-of-eight turns of a bandage around the ankle and foot-piece of the box, is apt to slip and permit displacement of the fracture, and discomfort to the patient. To obviate this, the foot, in the hospital, has usually been held up by a sling made of adhesive plaster, and an experience of more than twenty years' duration testifies to its efficacy and safety.

Fig. 4.



Foot-sling.

Fig. 5.



Foot-spring after Angles *a a* have been overlapped.

The method, as lately modified by Dr. Slaughter, while house surgeon, is shown in the annexed woodcuts. Two pieces of adhesive plaster (and preferably that known as the rubber adhesive plaster of Seabury or Grosvenor), the width of the foot, are overlapped so that the lower portion is left with its sticky surface to be applied to the sole of the foot and to the heel, and the upper part to the outer surface of the foot-piece of the fracture-box. To lend additional security to the foot, the part of the plaster covering the heel is cut out as indicated in the figures, so that, by superimposing the angles (*a*, *a*), a cup-shaped receptacle is formed. Practically it might be objected to this, as it has been to the sling formed from a piece of bandage and passed under the heel up to and over the end of the foot-piece, that sloughing of the heel is liable to occur. But the weight of the foot is, by the plaster, distributed over a considerable surface, and damage to the heel from this method of suspension is really unknown. It is to be understood that this sling is intended to supplement and not to take the place of the support given by the bed upon which the leg rests. When it is necessary to raise the limb for any purpose whatever, the plaster is simply stripped from the foot-piece, which sets free the fracture-box. This sling is in general use, both in the treatment of simple fractures, until they are put up in the plaster-of-Paris splint, and also in the case of compound fractures.

Usually the foot is additionally secured to the foot-piece by a few turns of a muslin bandage, as a precaution against the effects of sudden jumping or starting of the limb. To aid in controlling this symptom it has also been found of service to make pressure upon the upper part of the leg by means of a large pad of oakum, or of numerous folds of a piece of an old blanket, held *in situ* by a strip of bandage passing around the box.

Correspondence.

BOSTON, *April*, 1879.

EDITOR NEW YORK MEDICAL JOURNAL:

DEAR SIR:—In the March number of your excellent journal, Dr. Loring publishes a reply to my criticisms of Dr. de Rosset's "Theory of the Action of the Ciliary Muscle," to which I make the following answer:

Professor Huxley, in his "Life of Hume," speaks as follows in relation to hypotheses in science: "All science starts with hypotheses; in other words, with assumptions that are unproved, while they may be, and often are, erroneous; but which are better than nothing to the seeker after order in the maze of phenomena. And the historical progress of every science depends on the criticism of hypotheses—on the gradual stripping off, that is, of their untrue or superfluous parts—until there remains only that exact verbal expression of as much as we know of the fact, and no more, which constitutes a perfect scientific theory."

Dr. Loring's assumption, that the distention of the globe is the principal cause of the change in shape, and the change in direction of the fibers, of the ciliary muscle, is to me an "untrue" and "superfluous" part which I wish to strip off, for the following reasons:

1. It is a physiological fact, that stretching or distending a portion of the living organism causes its atrophy; but the

ciliary muscle of a myopic eye is hypertrophied; hence one reason for my doubt of the assumption.

2. To suppose that this mechanical distention has caused this effect we must assume that a parallel effect has been produced in that portion of the sclerotic to which the ciliary body is attached, or that a dislocation of the ciliary body has taken place. As to the first point, we know that this segment of the globe *hardly* changes its radius of curvature; * as to the second point, there is no anatomical evidence of a dislocation of the ciliary body, such for instance as there is of the dislocation of the choroid in posterior staphyloma; in this last-named affection we have an exaggerated picture of what would happen in the ciliary region were it not for the fact that changes in shape of the globe are effected almost wholly at the expense of its posterior segment.

3. Finally, my sections of the ciliary region, made on embryonic eyes in various stages of development, and of developed eyes hardened in Müller's fluid, osmic acid, and chloride of palladium, have convinced me of the truth of most of Iwanoff's observations, published in the "Graefesaemisch Handbuch" (1st Bd. 1st Theil), according to which any such stretching out of the ciliary muscle is inconceivable. Lest Dr. Loring should accuse me again of leaving his very valuable contributions unread, I hasten to note that he has quoted part of the same article of Iwanoff's in his "Remarks on the Ciliary Muscle" ("Report of Fifth International Ophthal. Congress").

Now as to the authorities. Dr. Loring, after quoting various authors, asks, "Could there be higher corroborative proof that the extension of the eye-ball did alter the shape of the ciliary muscle?" He continues, "I could go on quoting from all the standard text-books, let alone monographs, but the above is sufficient. The only wonder is that Dr. Hunt does not appear to be very familiar with the contents of the very works and authors he quotes." I answer Dr. Loring that *there are* "higher corroborative proofs" than the opinions of any authority; these are facts. In the seventeenth century Harvey might have been cited in support of some very foolish errors; in the eighteenth century the same was true of Haller; in this nineteenth century the condition is the same. For instance, Arlt says that increased pressure in the chamber of the vitreous is the principal cause of the elongation of the myopic globe; but I can not believe it, since I can find no results of such pressure on the lamina cribrosa, nor on the suspensory ligament of the lens, structures much less capable of resisting such a force than the weakest of sclerotics. As a pupil of Professor Arlt, whom I highly honor, I believe that a disbelief, supported by facts, would be more grateful to him than a belief founded only upon his supposition or dictum.

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* Dr. Loring quotes me twice to this effect (pages 228 and 290 of his communication); but on page 291 he quotes the same statement omitting the word "hardly," and then goes on to convict me of the absurdity of stating that the cornea never changes its radius of curvature. I will not attempt to characterize such an abuse of quotation marks, lest I become personal.

Having explained my reasons for not believing Dr. Loring's hypothesis, I will now show why I called it "coarse and unscientific." The fifteenth volume of Graefe's "Archiv." and Vol. II. of Stricker's "Handbuch" furnish sufficient evidence of the painstaking nature and the success of Iwanoff's researches upon the anatomy of the ciliary body and choroid. The principal discoveries which he has published are now fully confirmed; one of these discoveries was the special arrangement of the fibers of the ciliary muscle in short- and long-sighted eyes, that led Iwanoff to advance a new hypothesis as to the causation of these types of muscles.*

Dr. Loring, not satisfied with Iwanoff's hypothesis, proposed one of his own that was founded only upon the increase

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* Dr. Loring attempted to give before the Fifth International Ophthalmic Congress a *résumé* of Iwanoff's ideas, but by a mistaken translation of one word he confuses Iwanoff's argument; he translates "angestrengte Accommodations Thatigkeit" as "*increased* demand on the act of accommodation," making the sentence read, "From such an (myopic) eye, which has already become typical, an increased demand on the act of accommodation will be required"; this is not true, of course, for an increased demand upon the act of accommodation is not made in myopia; but a *laborious* demand is made, as Iwanoff says, and for the reason that he gives, viz., the absence of the circular fibers causes the task to fall upon the meridional fibers, and thus an amount of work absolutely less than that performed by an emmetrope becomes relatively much more burdensome.

in length of muscle and globe; these are absolutely the only facts upon which he bases his hypothesis; to state that he based it upon Iwanoff's researches is merely making a statement, for no fact of Iwanoff's demonstration is in any way related to Dr. Loring's theory; the lengthening of the globe and the ciliary muscle are the foundations of his hypothesis, in which the special development of the circular fibers in hypermetropia, and of the longitudinal fibers in myopia, as discussed by Iwanoff, have no place; indeed, Dr. Loring attempts to demolish this theory of Iwanoff's as a preface to the establishment of his own; but these foundations of Dr. Loring's hypothesis are primitive facts in the history of modern ophthalmology; a number of recently discussed truths modify the deductions to be drawn from them very considerably; hence, as a theory merely in accord with the former, and opposed to them when taken in connection with later discoveries, it is figuratively coarse and literally unscientific. Again, since we have no knowledge that an increased pressure within the globe is the power that modifies the nutrition of the eye, so as to produce the long myopic globe, but on the contrary from the increased depth of the anterior chamber and the condition of the lamina cribrosa have reason to suppose that no such force exists, we call Dr. Loring's hypothesis a guess, i. e., a "judging without any certain evidences or grounds." Dr. Loring criticises my statement, that the ciliary processes develop upon the anterior segment of the globe after it has taken its proper curvature; he asks, "Does the curvature of a new-born baby's eye—anterior as well as posterior—always remain the same, or does it change with the growth of the rest of the body? If it does remain the same, then the arc of a segment of a smaller circle is the same as that of a larger one." There is no circle concerned in the matter; my language above quoted is not exact, but it does not contain the inaccuracy that Dr. Loring's geometrical simile implies. To explain: the study of the development of the eye teaches us that, after the involution of the lens, the anterior segment of the globe is shaped upon it, and for this reason it maintains a very regular and slightly changing degree of curvature; the posterior segment of the globe, on the other hand, is a simple membranous sac until after the sclerotic is considerably developed; as such, the posterior portion of the globe is easily modified by all causes operating to modify the shape of the globe; myopia, hypermetropia, and staphyloma posticum are proofs of this statement, just as the slightly varying curve of the anterior segment of the globe (not cornea alone, as Dr. Loring misquotes on page 291 of his article in March number) is the proof of the essential truth of my loose expression above referred to; perhaps I should add anatomically, not geometrically, speaking.

Very respectfully yours,
David Hunt, M. D.

Clinical Reports of the Demilt Dispensary.

DISEASES OF THE DIGESTIVE SYSTEM.

By Dr. Daniel Lewis.

In January, 1878, a general report of my class was published in this journal, and the present brief report may be taken as a supplement to what was there written on malarial diseases.

During the past year there has been about the same number of well-marked cases of intermittent fever as in 1877 (when one hundred and five were treated), but a considerable increase in other diseases of malarial origin, especially neuralgias of the fifth pair and of the intercostal nerves.

We have continued the treatment of malarial fever with Clark's powder,* sulphate of cinchonidia being substituted for quinine for the sake of economy. After a considerable experience in the use of this substitute, I am convinced that its cheapness is its only superior quality. It has often happened during the past year that a case would not yield to repeated doses of cinchonidia, which was promptly cured by quinine;

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* ℞. Cinchoniæ sulph. ʒ ss; Pulv. opii, Pulv. capsici, āā, gr. iij. M. et div. in ch. no. iij.

but I have never yet been obliged to change quinine for cinchonidia. If the cost of sulphate of quinia were within the means of all patients, I should invariably use it.

There are many cases of intermittent fever which do not yield to any of the cinchona preparations, when recourse to other remedies is necessary; and for such patients Fowler's solution has almost invariably been effectual.

A single case may be given as typical of several similar ones treated by arsenic:

Mary G., United States, twelve years. Lived in New Jersey during 1877, and had intermittent fever while there, which was treated by quinine, which rendered the attacks less regular, but did not cure. After coming to this city she was again affected with the disease, for which we ordered Clark's powder with ¼ grain of opium, but with no benefit. There was considerable digestive derangement, and Fowler's solution was combined with a rhubarb and soda mixture (Pulv. rhei gr. x, Bicarb. sodæ gr. xv, Aquæ menth. pip. ℥ iv.), in dose of ♏ jii, t. i. d., by which treatment the chills were promptly arrested and she has had no recurrence of the trouble.

Arsenic has long been recognized as an anti-periodic, and our practice in the Dispensary has been to try it in all cases after a few large doses (gr. x–xxx) of sulphate of cinchonidia or quinine have not proved useful.

In this connection it may be useful to recall the fact that a single large dose of quinine has a much more prompt curative action in malarial diseases than small ones given in frequent doses, as we have often had occasion to notice.

It was the opinion of the late Dr. Stephen Rogers, who had exceptional advantages in studying the action of the cinchona alkaloids in Chili, that quinine, as often given in small doses for intermittent fever, was actually wasted, the full benefit being obtained *only after large doses*, and cinchonism is no more marked in the latter case than the former.

My assistant, Dr. S. C. Parsons, has kept notes of twenty-four cases of malarial neuralgia which have been successfully treated during the year by arsenic, and a large number have also taken it, who did not return sufficiently often to properly test the remedy.

We have abundant authorities for using arsenic in these cases. Trousseau recommends it, but more especially in chronic malaria.

Day prescribes it in conjunction with tincture of belladonna, commencing with gtt. v of Fowler's solution, and increasing it one drop daily, until œdema arsenicalis is produced.[*] He also states that it is too often abandoned on the first appearance of constitutional symptoms; then is the time it should be pushed.

Bartholow says it is directly curative in hemicrania and neuralgias of malarial origin.[†]

Hammond, in recommending arsenic for malarial neuralgias, warns the profession not to fall into the error of saying there is no malaria when quinia fails, but to try the arsenic.[‡]

Case I.—Mary S., Irish, single, twenty-seven years. Had malarial fever six months before presenting herself for treatment; was cured by quinine. Since that time she has suffered almost continually with a supra-orbital neuralgia in the right side, usually coming on in the afternoon. Her digestion was deranged also, and Fowler's solution was ordered in gtt. iv doses after meals, combined with the rhubarb and soda mixture.[§] At the end of the week she returned, somewhat improved, and gtt. v were given, which dose effected a cure in a few weeks.

Case II.—Margaret W., Irish, married, thirty-five years. Had neuralgia of fifth and sixth intercostal nerves, which was thought to be malarial from her having spent the summer in a district where such diseases prevailed. Before that time she was quite well. When first seen by us she was quite anæmic, and the Fowler's solution was ordered in gtt. v doses combined with the iron and quinine mixture.[‖] She continued with the same prescription for several weeks, improving in general health, and after three months reported her neuralgia also cured.

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[*] Day "On Headaches," p. 191.

[†] Bartholow's "Materia Medica," p. 120.

[‡] Hammond "On Nervous Diseases," p. 747.

[§] *Vide* "Demilt Report," January, 1878.

[‖] Ibid.

It is extremely difficult to obtain full histories from dispensary patients; but the above may suffice to show how the cases have been treated, the prescriptions having been varied from time to time as the symptoms indicated.

The results have been much more satisfactory than the treatment by the iron and quinine mixture, or any of the general tonics which we have formerly employed in such cases.

Quinine in full doses can not be long continued without deranging the stomach, but Fowler's solution in such combinations as have been indicated seems to improve the digestion, and I have no doubt is beneficial in many of that class of diseases.

In non-malarial neuralgia Anstie recommends Fowler's solution * as well as in the malarial forms, and we have often prescribed it in such cases with decided benefit.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, February 20, 1879.

Dr. Fordyce Barker, President.

Supplementary Rectal Alimentation, especially by Defibrinated Blood, as applicable to a large number of cases for which Nutritive Enemata have not heretofore been employed.—Dr. Andrew H. Smith read a paper on the above subject. His report on "Defibrinated Blood for Rectal Alimentation," presented to the Therapeutical Society of New York, will be found in the "Journal" for April, page 404.

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* Anstie "On Neuralgia," p. 233.

Stated Meeting, March 20, 1879.

Dr. Fordyce Barker, President.

Do the Colored Blood-Corpuscles possess Contractility?—Dr. Louis Elsberg, in a paper on the above subject, took the affirmative, from the result of his own observations, which were begun three years ago. He showed by means of diagrams on the black board that there were developed on the corpuscles thorn-like processes. He referred the changes which occurred to two varieties—indentation and protrusion. He had never seen the indentation proceed so far as to cause division of the corpuscle. He believed that the red corpuscle contained a network similar to that found in the white corpuscle. His researches confirmed the views advanced by Klebs and others.

Dr. Austin Flint, Jr., wished that Dr. Elsberg had given some suggestion as to the physiological applications of his observations. He was not aware, till he had heard Dr. Elsberg's paper, that the literature on the subject was so extensive. One of the important points needing to be investigated was the existence or non-existence of a membrane on the red corpuscle. Our knowledge on the function of the red corpuscles was very slight beyond the fact that they were carriers of oxygen to the tissues.

When the blood of one animal was transfused into another animal of a different class, it seemed for a time to restore the vital functions, but after a time death occurred. The explanation was that the plasma of the blood of one class dissolved the corpuscles of a different class.

Dr. Flint referred to a case of hæmaglobinuria which he had under observation. The patient was seized with a sudden chill, attended by a discharge of dark-red urine, which, on standing, became black. The microscope revealed no blood-corpuscles, but the coloring matter of the blood was readily made out.

Dr. W. H. Welch thought that the interest of the contractility of the blood-corpuscles depended on the question, whether they are susceptible of amœboid movements, or contained protoplasm endowed with the power of amœboid movement. He did not think it was satisfactorily proved that they did, nor did he think that Dr. Elsberg's observations reversed the opinion held by eminent microscopists on the subject. The change of the blood-corpuscles was not vital in the same sense that protoplasmic movements were.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, February 24, 1879.

Dr. F. J. Bumstead, President.

Primary Acute Purulent Inflammation of the Middle Ear.—Dr. H. Knapp read a paper on acute purulent otitis, drawing his deductions from private and hospital practice. He believed that ear disease was more common in America than in Europe, and thought the cause was probably due to rapid and frequent climatic changes. The most common cause was catarrh of the naso-pharyngeal mucous membrane. A cause, but not so frequent, was found in the eruptive fevers, sea bathing, and the nasal douche. Perfect recovery took place in 80 per cent. of all the cases. The most important element in treatment was rest. Local measures consisted in the application of warm water in the ear, leeches in the vicinity of the meatus, cautious inflation of the drum, paracentesis of the drum, and the use of astringent applications at a late period, when the discharge was profuse. Proper attention should be given to the catarrh of the naso-pharyngeal mucous membrane.

Dr. L. R. Agnew said at first he was disposed to question some of Dr. Knapp's views, but as the paper proceeded he felt that he was in accord with the main tenor of it, and was indebted to him for his able article.

While agreeing as to the importance of rest as a principle in the treatment of acute otitis, he did not think that the supine position was always indicated, inasmuch as during two attacks of acute otitis he found that rest in the supine position was intolerable, and the manner in which most ease was obtained was in walking around the room. Morphine, in quantity insufficient to relieve the pain when in the recumbent position, acted as a hypnotic when standing up.

He suggested the sitting posture as the best for purposes of rest. In regard to local measures he was in favor of applying a leech within the meatus. As to paracentesis of the drum, he preferred to make an incision when it began to bulge, rather than wait for several days to see if it would discharge through the Eustachian tube. The retention of the pus would be a greater risk than opening the membrane. He had never seen injury follow paracentesis of the drum of the ear when there was threatening perforation.

Dr. D. B. St. John Roosa agreed with the deductions of Dr. Knapp. The statistics of Germany and of this country closely agreed, and of one thousand cases of ear disease reported by himself some years ago, there occurred acute otitis in nearly 3 per cent. It was important to bear in mind, however, that many cases of the disease were never made the subject of report. The majority of cases of chronic aural catarrh had originally been acute, and many cases in children, occurring in general practice, were never noted. He agreed with the reader of the paper in regard to the question of rest as an important element in treatment.

Dr. Prout directed attention to the passage of sea water into the Eustachian tube during bathing. He considered it an important factor in the cause of inflammation of the inner ear.

Dr. Sexton thought the operation of paracentesis of the drum was too frequently performed. He believed that more attention should be paid to the relief of pain, and advised as a remedy, to hasten or prevent suppuration, the sulphide of calcium.

Dr. A. H. Buck wished to lay more stress than had been suggested upon the use of warm water to the tympanum, and thought, if it were had recourse to early and efficaciously, the disease would be arrested. He held with Dr. Agnew that there was less danger to be dreaded from paracentesis of the drum than from allowing the case to progress without it.

The indications were bulging of the membrane. He thought the success of the treatment depended upon the conscientious and thorough manner in which the minute detail was carried out.

Dr. C. E. Hackley said that a patient with acute otitis media had a tendency to keep quiet, whereas, in cases of furuncles in the ear, there was a tendency to be constantly in motion. He had seen benefit follow the snuffing up of warm water in acute otitis.

He thought the passage of sea water into the Eustachian tube while bathing was a frequent cause of ear disease.

Dr. E. Gruening referred to the benefit of opening the mastoid cells, and cited two cases in which complete relief followed the operation. He referred to it for the reason that Dr. Knapp had spoken adversely of it.

Dr. Pinckney drew attention to the resemblance of fatal cases of otitis and typhoid fever.

Dr. F. H. Castle said there was considerable difficulty in diagnosticating ear disease in small children. They were unable to direct attention to the seat of the disease, and a diagnosis was only made by the escape of pus, with perforation of the tympanum.

Dr. Oren D. Pomeroy agreed with the views that had been advanced during the evening, but he thought that the importance of relieving the pain had not been sufficiently estimated. He was much in favor of dry warmth in otitis, and believed that *moist* heat might cause the disease. The method he preferred was to apply to the side of the head a bag of hot meal.

He was liable himself to otitis, and was able to follow the course of the disease up the Eustachian tube. He had found the application to the throat of a solution of nitrate of silver (ʒj–℥j) would relieve the pain and check the disease. He had used in children, black pepper wrapped in cotton, and introduced into the auditory canal. He had found it to relieve the pain in a remarkable manner.

Dr. Knapp, in closing the discussion, said that he had merely given his own experience in reference to the operation on the mastoid bone, as he had found that the pus usually escaped through the middle ear.

There could be no doubt in regard to the necessity of opening the mastoid bone if the pus was retained in the mastoid cells.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, March 26, 1879.

Dr. E. L. Keyes, President.

Gangrene.—Dr. A. C. Post presented specimens of the larger arteries obtained from a case of spontaneous gangrene of the leg, which he reported at the previous meeting of the society. Coagulated fibrine extended upward into the iliac artery above the bifurcation. There was a trace of calcification in the aorta.

Exsection of the Ankle-Joint.—Dr. Post also presented a specimen of bone removed from a patient upon whom he had performed exsection of the ankle-joint. The patient was a man aged thirty, who entered the Presbyterian Hospital October 7, 1878, with a compound fracture of the ankle. The malleoli of the tibia and fibula projected through the skin.

October 12th.—Erysipelas of the wound and subjacent tissues occurred.

20th.—Sloughing of the soft parts.

After a month the lower fragment became loose and was removed. From that time there was but little change in the progress of the case.

During March it was decided, after consultation, to perform excision of the joint, inasmuch as there was no tendency for the necrosed bone to separate, and no improvement. The ordinary sub-periosteal operation was practiced. A pot-hook incision was made around the malleolus on either side and carried down to the bone. The periosteum was then elevated, and the affected bone removed by means of the chain saw. The astragalus was softened in part and the carious portion was removed by the gouge.

The limb was then placed in the plaster-of-Paris bandage. Dr. Post said, in answer to Dr. Howe, that the case was not treated by the antiseptic method immediately after the injury. Dr. Howe said that a case of compound fracture of the ankle-joint was admitted to St. Francis's Hospital, and treated by the Lister method four hours after the injury. The case did as well as if it had been a simple fracture. Dr. Keyes had tried the Lister method in compound fracture of the elbow with good results. There was so much hæmorrhage after the injury that the antiseptic dressing was of but little avail for three days.

Excision of the Ankle-Joint.—Dr. Joseph W. Howe presented specimens of bone which he had removed from the ankle-joint of a patient who entered St. Francis's Hospital one year ago, suffering from synovitis of that joint. After a time there was sufficient improvement to allow of his discharge; but during the past month he entered Charity Hospital with caries of the joint. A similar operation to that described by Dr. Post was performed; all of the bones of the joint were diseased.

The operation was conducted under the antiseptic spray and dressed subsequently in the same way. The operation was performed ten days ago, and since that time the temperature was only elevated on one day.

Single Common Carotid Artery.—Dr. Wyeth presented a specimen showing an arterial abnormality in the neck. The left common carotid artery took the course of the external carotid. It was given off directly from the arch of the aorta. The left half of the brain was half an ounce lighter than the right. The muscles of the left arm were heavier than those of the right.

Stated Meeting, April 9, 1879.

Dr. Joseph W. Howe, Vice-President, in the Chair.

Arthritis.—Dr. John A. Wyeth presented a specimen of disease of the knee-joint which he had removed, by amputation, from a boy ten years of age. The history of the case extended back for a year and a half, beginning with an arthritis. He first came under observation in 1876. The knee was flexed at right angles, with partial anchylosis. Sinuses existed around the joint, and extended up to the thigh. Amputation was performed at the middle third of the thigh above the diseased bone and superjacent tissues. A very important question in regard to the case was whether would it have been better to form flaps through inflamed tissues, and take the chance of sloughing, or perform a higher operation, passing through healthy tissue, and by so doing increase the risk to the life of the patient? Dr. Wyeth's case died shortly after the operation.

Dr. Shrady said that the disease, judging from the specimen, seemed to have as a starting point an osteitis of the articular extremity of the femur. He had a case that corresponded in several respects with the one presented. A supracondyloid amputation was made through inflamed tissues. The pulpy membrane which produced the pus was scraped off, and he had a good result.

The operation was performed at St. Francis's Hospital about a fortnight ago. His original intention was to perform exsection, but on making the anterior incision for that purpose the condition of the joint was such as to render an amputation necessary. The anterior flap made for the proposed exsection served for the amputation.

Dr. Briddon did not think that it was wise to risk life by a high operation. He thought that an indurated flap served its purpose better than a healthy one. Dr. Post said that there was a greater tendency to reparation in an inflamed flap than in a healthy one. Dieffenbach advised in the formation of flaps for transplantation, that a previous treatment of the proposed flap be pursued before it was placed in its final position. This treatment consisted in dissecting of the flap and placing under it a small piece of lint to cause inflammation. When it was in that condition it was then applied to the denuded surface.

Infarction of Lungs.—Dr. Beverly Robinson presented the viscera of a patient who died shortly after admission to Charity Hospital. The most noticeable change was extensive infarction of the lungs.

Tumor over Parotid.—Dr. A. C. Post presented a tumor which he had removed from the parotid region. It extended from the ramus of the jaw to the temporal bone, and was attached to the styloid process. It was in close relation with the superficial vessels of the neck, and for this reason the incision for its removal was made posterior, and the dissection was carried forward. It was proved to be not the parotid, inasmuch as the external carotid artery which passes through that gland was not encountered; and it was proved also that the facial nerve, which also passes through the parotid, was not injured, as there was no subsequent paralysis of the side of the face.

Dr. Wyeth said that in some cases the carotid artery did not pass through the substance of the gland, but formed a groove on its surface.

Dr. Post said he once undertook to remove a tumor which he supposed to be superficial to the parotid, but was the parotid itself. After having made an incision, he recognized his mistake and discontinued the operation. When the consequences of removal of the gland were explained to the patient he was gratified that he was not exposed to the risk of paralysis of the face.

Dr. Briddon reported a case of tumor of the parotid region which was removed by Dr. W. T. White. It was supposed not to be the parotid, inasmuch as neither the nerve nor artery was encountered. After a few days paralysis appeared.

Dr. Shrady did not think there was any evidence that the gland was removed, inasmuch as the paralysis was not detected till several days after the operation. He suggested that a subsequent neuritis, or pressure on the nerve, as a result of the operation, might account for the paralysis. Dr. Briddon said there was œdema of the lids after the operation, and that the paralysis might have passed unnoticed till that subsided.

Osteo-Sarcoma of Ulna.—Dr. Howe presented a tumor of the ulna which he removed from a girl aged twenty-one, at

St. Francis's Hospital. It appeared nine years ago, and gradually increased. The appearance of the hand was that of flexure, with an inclination to the ulnar side. Two tumors were made out, one near the wrist, and another a little below the elbow-joint. Dr. Shrady saw the case before the operation, and held that it was an osteo-sarcoma. It was decided to give the patient the benefit of any doubt on the subject, and endeavor to remove the tumor in preference to amputating the arm. An incision was made down to it, and the flexor muscles separated. The two tumors were found connected. The lower one stretched across and was attached to the periosteum of the radius. The ulnar nerve was separated; the ulnar artery was tied. The wound was dressed by the antiseptic method, and the hand extended on a straight splint.

Bibliographical and Literary Notes.

ART. I.—*Cyclopædia of the Practice of Medicine.* By Dr. H. VON ZIEMSSEN. Vol. VIII. *Diseases of the Chylopoëtic System, with Chapters relating to Diseases of the Bladder and Urethra, and Functional Affections of the Male Genital Organs.* By Professor F. A. ZEUKER, of Erlangen; Professor H. VON ZIEMSSEN, of Munich; Professor F. MOSLER, of Greifswald; Professor N. FRIEDREICH, of Heidelberg; Dr. G. MERKEL, of Nuremberg; Dr. J. BAUER, of Munich; Professor H. LEBERT, of Vevey; and Dr. H. CURSCHMANN, of Berlin. Translated by J. R. GASQUET, M. D.; REUBEN J. HARVEY, M. D.; Mr. ROBERT W, PARKER; WARREN TAY, M. D.; ROBERT T. EDES, M. D.; DAVID MAGIE, M. D.; and GEORGE G. WHEELOCK, M. D. ALBERT H. BUCK, M. D., Editor of American Edition. New York: William Wood & Co., 1878. 8vo, pp. xiv.–935.

As may be gathered from reading the title-page of the eighth volume of the Cyclopædia, it may be inferred that a variety of diseases are described within its pages.

We have first a section of two hundred and fourteen pages on "Diseases of the Œsophagus," by Zeuker and Von Ziemssen, which is very comprehensive and seemingly exhaustive.

Bauer contributes the section on "The Diseases of the Peritonæum." We would call attention to the treatment of peritonitis as recommended by the author. General blood-letting and mercurials, so much employed formerly, are entirely discarded. The use of a few leeches only is permitted as a local depletant, and he believes that even this mode of depletion may be dispensed with in most cases. On the other hand, Bauer recommends the employment of the ice-bladder at the outset of peritonitis, not only to assist in controlling the inflammation, but also as an antipyretic measure. Opiates are recommended for the purpose of diminishing reflex excitation, and for their action in allaying hiccough and vomiting. The author says opium excites the peristaltic action of the intestines. He also thinks the reason why it is tolerated to so great an extent is because only a small part of it is absorbed. The same tolerance does not exist when used subcutaneously. We have from time to time expressed the opinion that the antiphlogistic effect of opium may be explained by its action in preventing endosmosis and exosmosis, which action morphia possesses when introduced into the blood.* The author, in describing puerperal peritonitis—puerperal fever—classifies it as peritonitis uncomplicated or associated with pyæmia. The latter condition is termed peritonitis lymphatica. There seems to be some confusion in the author's mind as to the exact nature of puerperal fever, and he falls into the too common error of supposing that any affection occurring during childbed is one of the forms of it. After discussing to some extent the nature and contagious character of the affection, he says on page 280:

"Peritonitis lymphatica is, therefore, probably to be regarded as an accidental disease of a wound—a pyæmic disease—in which the septic matter is first taken up by the lymphatic vessels, and conveyed onward by them. On the blood taking up the putrid material from the lymph-vessels, there arises a general infection—an actual septicæmia."

Fordyce Barker † has analyzed the affections incident to the puerperal state more perfectly and clearly than any other author with whom we are familiar. The several childbed affections may be associated in some degree, and in many cases are; nevertheless pyæmia, septicæmia, peritonitis, metritis, puerperal fever, etc., are shown by Dr. Barker to possess a separate entity, with a clinical history peculiar to each. The clinical history, together with its highly contagious character, shows that puerperal fever proper has an existence separable from the other affections named. Bauer describes the *post-mortem* appearances in puerperal cases very well, and only fails in making proper distinctions.

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* Dr. Richmond, of Livonia, N. Y., gave this explanation in the "Buffalo Medical Journal," February, 1872.

† "The Puerperal Diseases."

The same author gives a very good account of "Chronic Diffuse Peritonitis." In differentiating it he omits to make mention of hardness of the pelvic roof as found by vaginal examination. This sign is mentioned by Thomas in his article on pelvic peritonitis,* and will be found in nearly all cases. The author speaks of the prognosis as favorable in case the effusion is serous. Of six of which we have notes, four terminated fatally and two are still living. Of the latter, one has been of over a year's duration, and is attended with debility and emaciation, and a constant secretion of serum, which calls for frequent tapping; in the other, the condition was found to exist over five years ago at the time of an operation for ovarian tumor, † and the effusion continues to be poured out although the patient is in medium health. We cannot think the prognosis is very favorable. The remainder of the section is very well written.

Mosler contributes an elaborate section on "Diseases of the Spleen" of just two hundred pages. The "Introduction," covering about eighty pages, is especially excellent. We have studied "Leucæmia" (leucocythæmia) carefully in order to learn the author's views respecting its pathology. He makes three varieties: the splenic, the lymphatic, and the myeologenous, or that form which results from disease and injury of bones. The last-named form is after Neumann, who, in view of his discovery as to its pathological import, is able to explain the occurrence of pain in the sternum existing in a certain proportion of cases of leucæmia. These three varieties of the affection may be associated. With respect to the nature of the disease, nothing new is elicited, except the opinion that there exists a hyperplasia of the lymphatic organs and spleen developing an abnormal supply of white corpuscles. Mosler says that the disease is by no means incurable if treated in the forming stage, that is, before the leucæmic cachexia is marked. By administering quinine largely and continuously, and by following with tonic doses of iron and quinine, recovery may be expected, especially in the splenic variety.

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* "Diseases of Women."

† *Vide* number of this journal for February, 1874, p. 181.

To Friedreich is assigned the difficult task of contributing the section on "Diseases of the Pancreas," and to Merkel that on "Diseases of the Supra-renal Capsules."

Lebert contributes a valuable section on "Diseases of the Bladder and Urethra," and Curschmann closes with the "Functional Affections of the Male Genital Organs."

This volume in its entirety is a very valuable one, both the contributors and translators evincing much strength.

Art. II.—*Lectures on Dermatology.* By Erasmus Wilson, F. R. S. F. R. C. S. London: J. & A. Churchill, 1878.

These lectures were delivered in the Royal College of Surgeons of England during the years 1876, 1877, 1878, and the present volume concludes the nine courses of lectures delivered by Professor Wilson since he inaugurated the Chair of Dermatology in the Royal College of Surgeons in 1869. We regret to learn in the preface that the limitation of the endowment to the Chair of Dermatology ceases with 1878, and that in future it will embrace original work in every department in surgical pathology. In such an extensive field of science, we fear dermatological matters will be but rarely discussed in the future, and believe it would be better to restrict the Chair as heretofore, and thus encourage as much as possible the few earnest and promising workers in the present English school of dermatology.

The three courses of lectures which comprise the present volume are devoted to aberrations of pigmentation, and to disorders of the epidermis, nails, hairs, sweat, and sebaceous glands.

No one, who is already somewhat versed in dermatology, can read these lectures of Professor Wilson's without being impressed with the amount of knowledge of skin diseases which the author possesses, and at the same time adding to his own store of knowledge. The most experienced dermatologist will find in these lectures a mass of facts and observations which will well repay a most careful study of their contents. All who are interested in medical science revere the name of Erasmus Wilson, and appreciate the value of his labors in the field of dermatology, and we hope the last of his contributions has not yet been received. But, while giving due credit to Professor Wilson for his labors and knowledge, we must also take the liberty of criticising portions of his lectures which seem to us narrow-minded, and much behind the age. In fact, the present volume is made up to such an extent of purely personal and special views, many of which are not shared by other observers, and never will be, that the work is useless and unsafe as a text-book to the general practitioner. The lectures are of value only to those who are specially interested in the subject of diseases of the skin, and are familiar with the subject and with the views of the different authorities in this branch of medicine. It is not our intention to mention the numerous statements of Professor Wilson which we consider to be erroneous, as that would require a lengthy review, but will simply restrict our remarks to a criticism of the so-called parasitic diseases.

Although the existence of vegetable parasitic diseases of the skin has been accepted by every recent observer as beyond doubt, and their recognition regarded with justice as the greatest positive advance which has been made in late years in dermatology, yet Professor Wilson will not accept the parasitic doctrine—a doctrine which has been founded upon positive demonstration. For him, contagion and the law that, once cured, there is no return of the disease without a new contagion, have no weight. He says: "I may say, in a few words, that after as long an experience of the pathology and diseases of the skin as any man at present living, I am an utter disbeliever in this simple and attractive theory of fungus vegetation and contagion. Let me adduce a few popular illustrations, not by way of argument, but simply as suggestive of reflection:

"1. Ringworm is contagious only in a mitigated degree.

"2. Ringworm of the scalp never occurs in early infancy, and never beyond the period of childhood and youth.

"3. Ringworm, when communicated to adults, never affects the head, but shows itself in the superficial migratory form, which is called tinea circinata.

"4. Favus, in this country, may be declared to be utterly non-contagious.

"5. Versicolor, although common, and constantly met with among married people, affecting husband or wife, is very rarely met with in both."

He believes that the fungus structure, or as he calls it, the phytoform structure, is the result of a phytoform degeneration which takes place in the cells of the epidermis and rete mucosum, a degeneration due to a modification of nutrition, and consisting of a proliferation of the granular and nuclear elements of the formative and growing cells; that it is developed where it is found, and is independent of any organisms existing exteriorly to the skin, and is incapable of transmission by contact or inoculation.

How incorrect nearly all of these views of Professor Wilson's are, must be apparent to every student of dermatology. How contagious ringworm is, is shown by the manner in which it sometimes affects a large number of children of a school, and by its ready inoculability in adults. Favus is also readily communicated from the mouse to a child. Versicolor is probably never present in the mucous layer of the skin, otherwise the treatment by cleanliness and free use of soap would not be so speedily and permanently successful. The fungus in the three diseases mentioned is always present first on the surface of the skin, and may afterward penetrate more deeply, as is the case in favus and ringworm.

In fact, the most objectionable feature in the "lectures" is the positive manner in which the nature and etiology of the different diseases are given, when in reality we are in complete ignorance on the subject; or the balance of proof is against the explanation given, as for instance in the parasitic diseases just mentioned. Thus he also speaks of the "fungus" found in "impetigo contagiosa," though it is well known no special fungus has ever been found in the vesico-pustules of this disease. The finding of a "bug" in a scab is scarcely sufficient proof that it was the cause of the eruption, and with this criticism we believe Dr. Tilbury Fox agrees.

In spite, however, of all the drawbacks, the "Lectures" is the most valuable clinical contribution to diseases of the skin which has appeared for many years in the English language. There are other works which are preferable as text-books, but none of them exhibit that personal experience in skin diseases possessed by Professor Wilson. We congratulate him upon his successful medical career, and in the interests of dermatology again repeat the wish that the Chair which he has founded, will always be limited to the subject in which he has made his reputation.

ART. III.—*Clinical Lectures on Diseases of Bone.* By C. MACNAMARA, Fel. Cal. Univ., Surgeon to the Westminster Hospital. London: Macmillan & Co., 1878.

IN a series of twelve lectures, Mr. Macnamara has treated this somewhat misty department of surgery in a thoughtful, clear, and, as far as is consistent with his purpose, thorough manner. His opinions are apparently founded on his own pathological and clinical studies, and are entitled to consideration even when at variance with accepted views. In the first lecture on the anatomy and development of bone, he takes ground against some German anatomists in asserting that bone is not produced from temporary cartilage, but only from medulla, which has developed from cartilage after its permeation by blood-vessels. He insists, too, on the importance of the "subcartilaginous layer" of compact bone, which exists between the articular cartilage and the medulla, in preventing, for a time, the invasion of the medulla by inflammatory processes in the cartilage. This layer, formed in the ends of old fractured bones, hinders the medulla from producing material for bony union, and hence the necessity of removing it by resection for the cure of ununited fractures.

Lecture III. treats of hypertrophy, hyperostosis, chronic rheumatic arthritis, and diffused sclerosis. Hyperostosis is distinguished from hypertrophy in that the overgrowth is due to disease, which is generally of a sarcomatous nature when the enlargement is general, and may be caused by syphilis, nerve lesions, and chronic rheumatic arthritis, when it is local. Three cases of general hyperostosis are given in detail. Diffused sclerosis is illustrated in acute and chronic form by some instructive cases. The diagnosis between the acute form and acute periostitis the author considers impossible before the bone is exposed by incision; but remarks that in the latter necrosis supervenes rapidly, while in the former the bone may preserve its vitality. The cause of sclerosis is still obscure.

In Lectures III., IV., and V. the tuberculous affections of bone are dwelt on at length, and the dependence of joint diseases of this character on the strumous diathesis is insisted upon. Credit is given to Dr. Gibney, of this city, for demonstrating this point. With regard to therapeutics, the author follows Dr. Sayre in using the plaster jacket, but is not an enthusiast about excision. He says: "My experience so far is decidedly opposed to excisions of either the knee- or hip-joint, as a rule, in cases of tuberculous disease, whatever the age of the patient may be." When the articular ends of bone are diseased, he prefers, before resorting to excision, to try incision and drilling of the ends of the bones, with the insertion of drainage-tubes (antiseptically), rest, open air, etc.

Lecture VI. is on syphilitic diseases of bone, and VII. and VIII. on contusion, fracture, necrosis, caries, and ulceration. The three latter subjects do not receive sufficient attention, nor does rickets in the following lecture. The slow and careful administration of mercury for syphilitic caries is advised. Lister's method is warmly recommended in compound fractures, and a clear picture of phosphorous necrosis is drawn. In reference to the cause of rickets, it is said, "the more carefully we examine into the circumstances of individual cases, the more evident it becomes that hand-feeding during the first year of a child's life is at the root of the evil."

Of mollities ossium, in Lecture IX., the author has as little definite information as other writers, but suggests that it may be due to three causes: 1. Carcinomatous or sarcomatous disease of the medulla. 2. Affections of the medulla allied to lymphoma. 3. Some peculiar condition of the medulla or of the blood, dependent on pregnancy.

In Lectures XI. and XII. the tumors of bone are enumerated as "osteo-sarcoma, enchondroma, exostosis, cystic tumors, vascular and malignant tumors." The clinical features of these affections are too briefly stated, and considerable speculation as to development is indulged in. For osteo-sarcoma it is thought safe to remove less than the entire segment of the affected limb, because the elements of the growth are rarely taken up into the circulation, though capable of entering blood-channels.

In malignant disease, Mr. Macnamara is unwilling to operate, as, e. g., amputate at the knee, as he believes that the operation does not, in the aggregate, prolong life. In this view, it is needless to say, he will not be supported by many surgeons of experience.

ART. IV.—*Atlas of the Diseases of the Skin.* By BALMANNO SQUIRE, M. B. London: J. & A. Churchill, 1878. Part I. Pp. 89.

THIS first part of Dr. Squire's forthcoming Atlas consists of an octavo book of eighty-nine pages and four colored plates. The two first plates represent cases of nævus vascularis planus; the third plate a case of psoriasis; and the fourth plate the face of the patient represented in the third plate after treatment. Why Dr. Squire has given us plate four, we do not know, as it has no value whatever, representing as it does only a normal condition of the skin, and a result as regards treatment which can be and is attained in nearly every case of psoriasis by physicians everywhere. It would have been much better had he given a drawing of a case of nævus after treatment by his now well-known method of multiple scarification, for which he deserves credit.

The two plates of nævus are very good pictures of this disease, and much better than plate three representing psoriasis. We can not agree with him altogether as regards the value of chrysophanic acid in psoriasis, as a considerable percentage of our cases have been greatly aggravated by its use. It seems to us to be suitable only for chronic cases, attended with but little irritability of the skin. It has also the disadvantage of discoloring the clothes so much that some patients refuse on that account to continue its use. We still think that for the majority of cases a proper diet and the internal treatment by alkaline diuretics and arsenic is the best, and generally causes the eruption to rapidly disappear. As the disease is to be regarded as local in its nature, we hope some local application will soon be found which will supersede the present treatment.

Dr. Squire deserves credit for the energy he displays in the pursuit of his specialty, and we hope he will favor us with a complete atlas in the form of the present "part."

ART. V.—*Chemistry; General, Medical, and Pharmaceutical, including the Chemistry of the United States Pharmacopœia.* A Manual of the General Principles of the Science and their applications in Medicine and Pharmacy. By JOHN ATTFIELD, M. A. and Ph. D. of the University of Tübingen, etc., etc. Eighth Edition, revised by the author. Philadelphia: Henry C. Lea. 1879.

THE index of the new edition of this popular text-book contains three hundred new references relating to additional material. The work now includes the whole of the chemistry of the United States and British Pharmacopœias, and the Pharmacopœia of India. A large number of new illustrations have been added, and the book will be found in all respects fully up to the times.

ART. VI.—*On Rest and Pain; a Course of Lectures on the Influence of Mechanical and Physiological Rest in the Treatment of Accidents and Surgical Diseases, and the Diagnostic Value of Pain.* By JOHN HILTON, F. R. S. New York: William Wood & Co., 1879.

THIS volume, already favorably known to the profession, is issued as the first in a series of twelve, which the firm above mentioned promise to deliver for a very small subscription price. Their choice of this book is a wise one, for it deserves to be widely circulated. In a course of lectures delivered before the Royal College of Surgeons, the author has demonstrated the therapeutic value of rest, both from anatomical and physiological considerations, and extensive clinical experience obtained in the service of Guy's Hospital. The occurrence of pain in diseased conditions is explained by a careful study of the anatomy of the nerves, which makes this branch of anatomy interesting and practically instructive. A large number of illustrative cases are cited. The book can be warmly recommended to all classes of readers.

Art. VII.—*The Diseases of Live Stock and their most Efficient Remedies, including Horses, Cattle, Sheep, and Swine.* Being a popular treatise, giving in brief and plain language a description of all the usual diseases to which these animals are liable, and the most successful treatment of American, English, and European veterinarians. By Lloyd V. Tellor, M. D. Philadelphia: D. G. Brinton, 1879. Pp. 469.

This work is written in plain language, for the use of the the farmer and stock-owner, and the author has endeavored to render it a safe guide for practice according to the rules of the best veterinary surgeons. The directions seem very full and explicit, and the methods of treatment are abundantly illustrated wherever illustrations are necessary.

Books and Pamphlets Received.—Lectures on Practical Surgery. By H. H. Toland, M. D., Professor of the Principles and Practice of Surgery and Clinical Surgery in the Medical Department of the University of California. Second edition. Illustrated. Philadelphia: Lindsay & Blakiston, 1879. Price, $4.50.

A Manual of Examination of the Eyes. A Course of Lectures delivered at the École Pratique by Dr. E. Landolt, Director-adjoint of the Ophthalmological Laboratory at the Sorbonne, Paris. Translated by Swan M. Burnett, M. D., Lecturer on Ophthalmology, etc., in the University of Georgetown, D. C. Revised and enlarged by the author. Philadelphia: D. G. Brinton, 1879.

A Treatise on Therapeutics, comprising Materia Medica and Toxicology, with especial reference to the application of the Physiological Action of Drugs to Clinical Medicine. By H. C. Wood, Jr., M. D., Professor of Materia Medica and Therapeutics, and Diseases of the Nervous System, in the University of Pennsylvania, etc., etc. Third edition, revised and enlarged. Philadelphia: J. B. Lippincott & Co. 1879.

A Practical Treatise on Surgical Diagnosis. Designed as a manual for Practitioners and Students. By Ambrose L. Ranney, A. M., M. D., Adjunct Professor of Anatomy and Lecturer on Minor Surgery in the Medical Department of the University of New York. New York: William Wood & Co. 1879. Pp. 386.

A Treatise on Gout, Rheumatism, and the Allied Affections. By Peter Hood, M. D., President of the West Herts Medical Association. Second edition (revised and enlarged), with a chapter on Longevity. Philadelphia: Lindsay & Blakiston, 1879. 8vo, pp. 432.

A Treatise on the Diseases of Infancy and Childhood. By J. Lewis Smith, M. D., Clinical Professor of Diseases of Children in Bellevue Hospital Medical College, etc., etc. Fourth edition, thoroughly revised. With illustrations. Philadelphia: Henry C. Lea. 1879.

Physiological Therapeutics: A New Theory. By Thomas W. Poole. M. D., M. C. P. S., Ontario. Toronto: Toronto News Company, 1879. Pp. 240.

Notes on Rheumatism. By Julius Pollock, M. D., Fellow of the Royal College of Physicians, Senior Physician and Lecturer on Medicine, Charing Cross Hospital, etc. London: J. & A. Churchill, 1879. Pp. 115.

Reports on the Progress of Medicine.

QUARTERLY REPORT ON LARYNGOLOGY.

No. XVII.

By GEORGE M. LEFFERTS, M. D.,

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(*Concluded from April Number.*)

58. Lecture dealing especially with the differential diagnosis of the following forms of anginæ, viz.: the herpetic, the pultaceous, the ulcerous, the membranous, and the diphtheritic.

59. Parker regards recession of the chest wall as a more important indication for tracheotomy than a loud clanging cough, for in the most urgent cases voice and cough are all but abolished owing to implication of the vocal cords. He advocates the administration of chloroform previous to the operation, and has never seen any ill effects therefrom. The

higher operation is preferred as the more easy, especially in children, and the use of a tracheal dilator is advocated in preference to the immediate introduction of the canula; in this manner the tracheal wound is kept open. Then the author advises, *as a matter of routine in every case*, that the trachea and glottis be thoroughly cleared of all foreign matters, whether membrane or mucus, before the introduction of the tube. For this purpose a feather is usually employed, but any other means may be adopted which the operator may prefer. The author advocates the use of the largest-sized tube which can be got into the trachea without the employment of actual violence, and of the shortest that is consistent with safety, and he lays stress on the advantages of the tracheal part of the tube being freely movable. As regards the curve of the tube, it was stated that the outline should approximate to the Gothic rather than to the Roman arch; in other words, tubes made in the form of quarter circles (the usual forms are not recommended, for it can be shown that such tubes must almost necessarily impinge on the anterior wall of the trachea, and so produce mischief). The great indication for operation having been the presence of a mechanical impediment to respiration, so the chief object of the surgeon in the after-treatment must be to prevent its recurrence.

60. Pieniaczek touched the larynges of nine patients who were blindfolded, by means of various laryngeal instruments, such as metal and elastic sounds, sponge-holders, pencils, forceps, etc., with the following results: 1. A difference in the temperature of the instrument was always appreciated. 2. Patients were able to discriminate between a hard and a soft body. Could not distinguish the brush or sponge, however, from the hard sound, nor a slightly warmed metal sound from an elastic one. 3. Rough bodies, such as the pencil-holder, the head of the sound, and sponges, were as a rule not to be distinguished by the patient from the metal sound.

61. Peirce thinks that "sloughing sore throat," described by Churchill as "putrid sore throat," is a disease of more frequent occurrence than is generally thought. His description of it closely resembles that of diphtheria; indeed, he admits that the majority of practitioners would class the cases as ones of diphtheria, or at least as diphtheritic sore throat.

63. Reyher recommends that in certain cases, especially those of cancer, those in which the disease is located below the vocal cords, those in which a neoplasm is diffuse and ulcerative, in lupus of the larynx, and some others, that an explorative thyrotomy be performed in order that the surgeon may be in a position not only to make an accurate diagnosis, but to carry out an energetic and effective treatment. The dangers of the operation he regards as trivial compared to its possible results. In a case which he reports, the vocal cords were found to be infiltrated with cancerous deposit. After the above explorative or diagnostic thyrotomy had been made and a portion of the growth submitted to microscopic examination, the entire larynx was then extirpated according to Billroth's method. The patient died on the eleventh day.

64. An interesting paper devoted to proving that a lessening of arterial pressure accompanies all cases of stenosis of the larger air passages, as shown by the sphygmograph, and that this lessened pressure, pictured in the tracings of the instrument, bears a direct and demonstrable relation to the grade of the stenosis.

65. The patient had attempted to cut his throat, and, as the wound healed, it was found necessary to perform tracheotomy. The voice gradually became lost, and, on laryngoscopic examination, a tough dense membrane was seen to occlude the larynx between the ventricular bands, with anchylosis of the left arytenoid cartilage. The operation of thyrotomy was undertaken with the object of removing this membrane, and is the

third case on record in which thyrotomy has been practiced for this purpose. In the operation, Sémon had intended to only partially divide the thyroid cartilage, leaving its upper part uninjured, so as to insure subsequent perfect apposition of the parts, but was compelled to fully divide it. He then found that there was a second membrane in the larynx, at the level of the original suicidal wound, that visible with the laryngoscope being probably due to the adhesion of the false vocal cords. He urges, therefore, in similar cases, an examination through the tracheotomy wound to ascertain the presence of other membranes. The lower and primary membrane was being excised with a pair of curved scissors when the patient began to cough violently. It was thought that the tampon canula used did not sufficiently occlude the larynx, and that perhaps blood had entered the bronchi. In reinflating the tampon, the cough was replaced by an intense asthmatic paroxysm, marked by extreme inspiratory dyspnœa. No obstruction was found in the tube, but on partial evacuation of the tampon-bag the dyspnœa ceased, showing, the author held, that an excess even of equal pressure on the inner walls of the trachea sufficed to produce reflex spasm.

The sudden cough was in corroboration of Stoerck's statement that the posterior wall of the larynx, and especially the inter-arytenoid fold, excites cough when touched, while the anterior and lateral walls of the larynx are not so irritable.

The wound healed by primary union, but in spite of daily repeated and long-continued passage of bougies through the mouth, there was gradual cicatricial stenosis of the larynx, and a month after the operation no air passed through the mouth.

66. The author gives this name to tumors on the posterior wall of the pharynx, produced by dilatation of vessels on this and on the lateral walls of the same. This dilatation was, in two of the three cases which the author had seen, probably produced by an artificial compression of a coexisting struma by the patient's dress, in order to hide the goiter from view. In the third case nothing is said about such a compression, but there also was a large goiter. The appearance of these tumors is very much like that of a retro-pharyngeal abscess, but there is no fluctuation or diminished resistance on some spots against pressure, nor is there any pulsation. Its form is a semi-globular one. Deglutition and articulation are more or less impeded. The author made a small incision with a bistoury in two of the cases, this being followed in both instances by a very distressing hæmorrhage. This was at last stopped by the application of perchloride of iron, a tampon saturated with a solution of this drug being for a long time and firmly pressed against the spot of the incision. In both cases the size of the tumor was considerably diminished after this little operation, the difficulties in swallowing and speaking were greatly relieved, and the author had the opportunity of hearing that the cures were lasting. In the third instance, which concerned a lady aged seventy-two, he declined to perform the operation on account of the patient's great age.

67. Dr. Schreiber mentioned in the Königsberg Medical Society, apropos of the discussion on Meschede's case, which was successfully treated by subcutaneous injections of strychnia, that in a similar case of Professor Naunyn's a relapse had occurred four months later, but that the patient was now able to breathe without dyspnœa, if he either inspired very *deeply* voluntarily, or if compressed air was inspired.

68. Stork communicates the histories of two cases of luxation of the left arytenoid cartilage. They had been under his observation for several years, and no difference of opinion as regards their nature existed. In both, the voice from childhood had been a falsetto. In one, cicatricial

contraction, following an attack of diphtheria, was considered as the cause of the displacement; but, in the second, no such cause existed. The laryngoscopic appearances of the condition are well shown in the cuts which accompany the article. The treatment adopted was to remove in one case a portion of the tissue at the back of the displaced cartilage, and trust to the power of contraction in the subsequent cicatrix to draw it backward into its normal position, or nearly so, so as to enlarge the laryngeal space, which it encroached seriously upon. The attempt was successful. In the second case, the passage of hard-rubber tubes through the larynx for several years was entirely unsuccessful in replacing the cartilage. The position of the vocal cords in both these cases resembled that in double paralysis of the crico-arytænoidei post.

75. (*a*) Stirap advises a hot bath, or, better, a hot-air bath. Besides, he gives repeatedly a morphia salt in doses of $\frac{1}{12}$ grain, and a small quantity of vin. stibiat. The patient must remain at home for a day or two.

(*b*) Wood simply recommends *absolute* abstinence from all liquids until cure is effected. The patient may go out; and it is even desirable that, by active occupation and warm clothing, he should come into transpiration. Against insomnia, chloral, against constipation, laxative pills ought to be ordered. The cure is said to be effective within three days.

76. The histories in considerable detail, and with clinical remarks, of: 1. A case of carcinoma of the larynx with perichondritis and pneumothorax. 2. Paralysis of the left *vago-accessorius*, *glosso-pharyngeus*, and *hypo-glossus*, the result of sarcoma at the base of the skull (tumor in the left fossa occipitalis inferior). 3. Double paralysis of the recurrent laryngeal nerves, following diphtheria in a child. 4. Double paralysis of the abductor muscles of the glottis, the result of papillary cancer of the pharynx.

77. Schuyler's case is an interesting one, and its result is further evidence in favor of the early performance of tracheotomy in this class of cases.

78. Schäffer, who was the first in Germany to remove a soft laryngeal fibroid polypus from the larynx by means of the sponge, as recommended by Voltolini, has succeeded in accomplishing the same result by the same means (so he states) in the case of a hard fibroid growth upon the edge of the right vocal cord, and beneath it, but the growth had previously been cauterized, and small bits removed with the guillotine. After the sponge, both wet and dry, had been introduced many times, at various sittings, the wire snare was resorted to, and with it the growth was cut into two portions, and nearly torn off, the sponge then reintroduced easily swept it away.

81. A most excellent and readable little essay upon the above subjects, full of practical hints and suggestions and of value to all general as well as special practitioners.

83. Whistler in this lecture finishes the subject of the relapsing ulcerative laryngitis of the earlier and intermediate periods of syphilis, and takes up that of treatment. All cases require both constitutional and local treatment. None of them can be relieved without the former, while local applications are not only very important but are often indispensable means to complete the cure. The drug which ranks above all others in the earlier affections is mercury. The peculiar features of the case will guide in the selection of the form used, and the particular mode of its administration. Full directions and much good advice are given in the original article. The local remedies best suited to the earlier cases of laryngeal syphilis are: Chloride of zinc, sulphate of copper, nitrate of silver, iodo-

glycerine, and, in certain cases, iodoform; besides, no measure which tends to invigorate the patient should be overlooked.

84. Wegner (Berlin) described, at the late Congress of the' Society of German Surgeons, the case of a woman, aged fifty-two, who was operated on in September of last year. Tracheotomy was first performed on account of severe dyspnœa; and, the presence of cancer having been detected by laryngoscopic examination, the whole larynx was removed along with the epiglottis.

The patient was now in good health, and showed no signs of a return of the disease. She had used Gussenbauer's vocal apparatus occasionally, and had spoken distinctly with it.

She could, however, wear it for only short times, as, in consequence of the fauces being imperfectly shut off from the trachea, portions of food and mucus readily passed into the latter, and interfered with the play of the metallic tongue.

The cause of this was probably the removal of the epiglottis, from which proceeding Dr. Wegner would abstain in any subsequent similar operation, unless it was found to be indispensable.

Dr. Wegner then showed the action of an artificial vocal apparatus on a girl aged eleven, who, at the age of seven, had an attack of diphtheria, which was followed by cicatricial closure of the trachea and complete destruction of the vocal cords. When she was admitted to the hospital she wore a tracheal tube, and was quite voiceless. By means of laryngotomy and the use of bougies, the laryngeal passage was made pervious.

Dr. Wegner supplied her with an apparatus, which differed from Gussenbauer's in the absence of the tongue-shaped epiglottis, and further, in the circumstance that the voice-tube was introduced first, and then the tracheal tube. With this apparatus she could speak easily and distinctly.

86. The first part of Ziem's article, which is before us, deals with some of the causes—both acute and chronic—which cause occlusion of the nasal fossæ. Some excellent reasons why we should breathe through the nose are given.

CONTRIBUTED BY DRS. E. FRANKEL AND G. R. CUTTER.

SURGERY.

Treatment of Ranula.—Parras has frequently and successfully treated ranula by injections of 4–10 drops of a concentrated solution of chloride of zinc into the tumor. He presents, among others, a stubborn case in which excision, setons, and the introduction of drainage-tubes had been used unsuccessfully, the contents of the cyst being constantly reproduced, and operative treatment was consequently abandoned, with the exception that palliative punctures were occasionally necessary to prevent suffocation. Ten drops of a solution of chloride of zinc (1–10) were then injected without the preliminary evacuation of the cyst; soon afterward a second injection was made of a stronger solution (1–5). In less than five weeks after the commencement of this treatment a perfect cure was obtained. This treatment is applicable to all kinds of mucous and serous cysts. The author used it in a case of subhyoid cyst which had resisted cauterization and the injection of tincture of iodine, but which disappeared after a single injection of chloride of zinc.—"Bordeaux Médical," and "Hospitalstidende," No. 49. G. R. C.

Osseous Affections of Children as a Diagnostic Sign of Hereditary Syphilis.—When the infant is emaciated either by reason of the inherited syphilis or from other causes, Parrot says that one may, by a little attention, find sure signs of syphilis in certain portions of the skeleton. The place to which the investigation should first and most prominently be directed, when it is suspected that the child has syphilis, and when all other symptoms are absent, is the inner surface of the tibia. In place of the usual concavity which this presents in healthy and well-formed children, the syphilitic child shows a distinct convexity in consequence of the thickening of the bone. Usually the thickening extends uniformly over the entire inner surface of the tibia; occasionally, though more rarely, a series of small tuberosities is found separated by excavated portions. Another locality, which should also be carefully examined, is the lower extremity of the humerus; but, while the inner surface of the tibia is readily accessible, in consequence of its superficial position, the examination of the lower end of the humerus is more difficult by reason of the thickness of the soft parts which cover it. The thickening is more readily perceived by seizing the humerus at its middle, and letting the hand glide down toward the lower end. When the child is older, seven to twelve months old, an important sign may often be found on the cranium. Around the quadrangular fontanelle, at the rounded angles of the ossa frontis and bregmatis, nodular elevations are formed by the thickening of the bones. These may be so distinct as to be readily discovered by inspection, but will always be readily recognized on palpation of the cranium. There is occasionally found, especially in infants fourteen days to three months old, along the course of the extremities, one or two spindle-shaped tumefactions of the long bones; they are most frequent on the femur, and more especially at the superior extremity, and are due to fractures which are in course of union, and semi-ossified callous masses are found at these places in autopsies. These affections of the osseous system are, when detected, an important and certain sign of hereditary syphilis, and are of so much the greater value because they are often found in children in which all other symptoms of the disease are wanting.—"Gaz. des Hôpitaux," and "Hospitals-tidende," No. 47. G. R. C.

THEORY AND PRACTICE.

Contribution to the Knowledge of Pernicious Progressive Anæmia.—C. M. Sörensen, Copenhagen ("Allg. med. Centr. Ztg.," No. 54), from observations of eleven cases of progressive excessive oligocythæmia, concludes that the etiology of this always fatal disease is still unknown and mode of origin generally spontaneous. The blood was first examined and found to be pale and transparent. A mixture of blood from such patients with artificial serum was always so pale that from this alone the disease could be diagnosticated. The number of blood-corpusles counted according to Malassez's method was only one fourth to one twelfth of the normal number. As soon as the number had become reduced to about half a million, death ensued; it must, therefore, be assumed that this quantity is necessary for the preservation of life. The red corpuscles were also abnormal as regards size, form, and color. The serum had an alkaline reaction, and did not dissolve the red corpuscles of a healthy subject. The disease developed in a latent manner; in no case could its commencement be determined. The symptoms consisted in gastric derangements, anæmic symptoms, pale-yellowish but icteric color of the skin, a certain *embonpoint* in spite of great debility, bellows murmur over the heart and neck vessels, constant hæmorrhages on the retina, irregular febrile attacks without ascertainable cause. Death was sure to ensue after a longer or shorter course. Of the eleven cases, nine were examined *post* *mortem*, and the following condition was found: thinness of the blood; granular degeneration of the glandular tissue of the liver, kidneys, and supra-renal capsules, and of the heart; the internal coat of the aorta had undergone fatty degeneration; capillary hæmorrhages were found in the tissues, arising from degeneration of the capillary wall. Aside from lesions ascribable to faulty nutrition and mal-assimilation, no other pathological changes of etiological value were noticed. The above eleven cases were observed in the course of a year and a half in the hospital. Seven of them were men, four women. In the latter no connection with pregnancy or parturition could be found, as was stated to be in Gusserow's case. Nor could the cause in any case be ascribable to unhealthy occupations, privations as Biermer believes, nor to hereditary disposition. One patient only stated that the exertions during vigils with a sick sister and grief over her decease were the probable cause. The author conjectures the origin of the disease to be in a faulty formation of the red corpuscles, and opposes the hypothesis that their mere transformation is the cause; for in this disease the nutrition of the tissues is rather increased than diminished. For the purpose of exact diagnosis the author emphasizes the counting of the red corpuscles and by differential diagnosis between it and other oligocythæmic conditions, severe cases of chlorosis. In one case transfusion, but without success, was tried, nor did other methods of treatment avail. The prognosis is, therefore, most unfavorable. E. F.

The Iodides of Potash and Ethyl in Asthma.—Sée has made repeated experiments with these two remedies in asthma. The iodide of potash was used with twenty-four asthmatic patients, and given at meals in doses of 1½ gramme at first, and then in 2- and 3-gramme doses. Some patients also received a little opium or chloral. Sée observed that the small doses of the iodide readily caused iodism, and recommends that the treatment be continued for some time. It may be that the favorable action of the iodide depends on the stimulation of the bronchial secretion, perhaps on the direct impression on the nervous system. The inhalation of 8–10 drops of iodide of ethyl at the commencement of a paroxysm always suffices to arrest it. He gives the following *résumé* of his researches: 1. The iodide of potash is the most certain remedy for asthma of whatever origin. 2. The iodide of ethyl relieves the accesses of dyspnœa in a very rapid manner; it also appears to act advantageously in cardiac and laryngeal dyspnœa.—"Jour. des Sciences Méd. de Louvain," Feb., 1878.

G. R. C.

Treatment of General Progressive Paralysis.—Ludwig Meyer considers this disease to be a chronic encephalitis, and treats it with local revulsives. He produces a small pustulation of the scalp in the region of the great fontanelle with an ointment of tartrate of antimony (1 part to 4), and keeps the suppurating surface open with basilicon ointment for two or three months. At the same time he gives the iodide of potash internally. Of seventeen cases thus treated, eight were cured and two improved. —"Berl. klin. Wochenschr.," and "Gaz. Med. Lombardia," July, 1878.

G. R. C.

DISEASES OF WOMEN.

Retroversion with Retroflexion of the Gravid Uterus, Reposition repeated Four Times; Successful Result.—Dr. Fr. Björnström reports the case of a woman, twenty-five years of age, with a roomy pelvis, who had a retroversion of the impregnated uterus. The organ occupied a horizontal position, with the fundus turned toward the sacrum, and the vaginal portion toward the symphisis pubis. Eight weeks had passed since the commencement of pregnancy. This case, therefore, came under observation earlier than either of the forty-one cases reported by Martin, "Die Neigungen und Beugungen der Gebärmutter," Berlin, 1866, two and a half months being the least advanced of the cases cited in the above. From the condition of the os, abortion was imminent. The patient was placed in the position *à la vache*, and reposition was readily accomplished by making pressure on the fundus with two fingers introduced into the rectum. A relapse occurred two days later, probably in consequence of severe straining at stoo.. Similar accidents occurred nine and seventeen days later. On the first two occasions there was pure retroversion; in the latter, the vaginal portion was at a right angle to the corpus uteri, which was directed backward and downward. This retroflexion was evidently the result of the space contraction caused by the increased growth of the organ. The fourth reposition was accomplished with considerable difficulty. The further course of the pregnancy was normal; delivery occurred with uncommon rapidity. Martin and other gynæcologists consider reposition as contraindicated by commencing abortion. Björnström thinks the case above reported, in which abortion was twice threatening, and which was relieved by prompt reposition, a strong argument for the contrary opinion. The treatment should commence with emptying the bladder and rectum. The reposition is not to be performed with instruments, such as the curette, vectis, or any artificial "hysteromochlion." An abdominal or side position should be maintained for some time after the reposition.—"Upsala Läkareförenings Förhand.," Vol. XII., No. 2.

G. R. C.

Miscellany.

Correction.—On page 281 of our March number, statements were inadvertently admitted which disparaged the treatment of the late William H. Seward, whose injury, it will be remembered, was so severely complicated by the subsequent attempt to assassinate him.

JAMES B. HUNTER, M. D., *Editor.*

Dr. Du Bois's Gift to the Academy of Medicine.—At a stated meeting of the New York Academy of Medicine held April 17, 1879, the following preamble and resolutions were offered by Dr. S. S. Purple, seconded by Dr. Austin Flint, and unanimously passed by the Academy; viz.:

Whereas, Abram Du Bois, M. D., of this city, a most worthy and generous benefactor of the medical profession, has given to this Academy the sum of five thousand dollars for the purpose of enlarging and improving the present building, therefore it is unanimously

Resolved, That the Fellows of the New York Academy of Medicine recognize in this generous gift, again the noble qualities of head and heart which have, on more occasions than the present, moved the generosity and benevolence of the donor.

Resolved, That this Academy accepts with thanks this generous gift and hereby declares its desire, and at this stated meeting orders that Abram Du Bois, M. D., of the City of New York, be and hereby is declared a benefactor of this Academy, and that his name be enrolled on its list as such for all future time.

Resolved, That this Academy, in its earnest desire to duly recognize in a proper manner the magnanimity of the donor, hereby declares Abram Du Bois, M. D., an honorary fellow of the New York Academy of Medicine.

Resolved, That a copy of the foregoing preamble and resolutions be suitably engrossed and authenticated by the proper officers of this Academy, and forwarded to our most worthy benefactor.

Resolved, That these resolutions be published in the "New York Medical Journal" and the "New York Medical Record."

Signed FORDYCE BARKER, M. D., LL.D.,
H. T. HANKS, M. D., *President.*
Recording Secretary.

Report of the New York Hospital for 1878.—According to this report, the total number of patients treated during the year, which is the first whole calendar year of service in the new building, was 1,493. The average number of patients was 118, the total capacity being 165. By this it will be seen that during its first year the demands upon the hospital have been nearly equal to its capacity. In the House of Relief in Chambers Street, under the management of Dr. W. T. Bull, the whole number of patients treated was 361. In the Out-Patients' Department there were treated 4,995.

There has been an extension of the field of work of the Pathological Department. A commodious laboratory, with a full supply of microscopes and other necessary apparatus, has been opened. It is intended that instruction in histology, which has now been begun, shall be given continuously, thus supplying a need long felt.

The library has been increased by more than five hundred volumes. It has a large supply of foreign and American journals, transactions of societies, and hospital reports. The profession is not only invited, but urged, to profit by this department.

The Bloomingdale Asylum remains under the management of Dr. Nichols. There have been a number of improvements made during the year, which will add much to the efficiency of the institution. We notice that there is a decreased mortality for this year—in fact, a smaller number of deaths than in any year since 1842.

Alumni Prize.—The Prize of the Alumni Association of the College of Physicians and Surgeons, New York, of $500, for an original essay on some subject connected with medicine or surgery, is open only to the competition of the Alumni of the College of Physicians and Surgeons.

The conditions upon which the prize will be awarded are as follows:

1. The subject is left to the option of the competitor. 2. The essay must present sufficient original, experimental, or clinical observation, to make it a useful contribution to medical knowledge. 3. The essay, designated by a motto, must be sent to a member of the Committee on Prize Essays, accompanied by a sealed envelope, inscribed with the motto, and containing the name and address of the author, on or before February 1, 1880. Committee: A. Brayton Ball, M. D., 38 West 36th Street; T. A. McBride, M. D., 12 East 28th Street; Robert F. Weir, M. D., 37 West 33d Street.

Dr. Schmidt's Essay on Yellow Fever.—We give some space in our present issue to a paper on yellow fever, which was prepared by Dr. H. D. Schmidt at the request of Dr. A. C. Holt, Vice-President of the Board of Administrators of the Charity Hospital, New Orleans, in January, 1879, and includes the results of Dr. Schmidt's pathological investigations.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from March 14 to April 13, 1879.

Town, F. L., Major and Surgeon.—The order directing him to accompany recruits to the Pacific Coast is revoked, and he will proceed at once to Fort Vancouver, W. T., and report in person to the Commanding General, Department of the Columbia, for assignment to duty. S. O. 82, A. G. O., April 5, 1879.

Hartsuff, A., Major and Surgeon.—Assigned to duty as Post-Surgeon at Fort Wayne, Michigan, relieving Assistant Surgeon J. B. Girard, ordered to Department of Texas. S. O. 55, Department of the East, April 10, 1879.

Tilton, H. R., Major and Surgeon.—Assigned to duty at Fort Riley, Kansas, relieving Assistant Surgeon Kilbourne. S. O. 53, Department of the Missouri, March 20, 1879.

Girard, J. B., Captain and Assistant Surgeon.—Relieved from duty in Department of the East to accompany Twenty-second Infantry to Department of Texas, and on arrival report to the Commanding General of that Department for assignment to duty. S. O. 83, A. G. O., April 7, 1879.

Moseley, Edward B., First Lieutenant and Assistant Surgeon.—Granted leave of absence for six months on Surgeon's certificate of disability, with permission to leave the Department of the Platte. S. O. 71, A. G. O., March 24, 1879.

De Loffre, A. A., First Lieutenant and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Jackson Barracks, New Orleans, La. S. O 47, Department of the South, March 19, 1879.

Kilbourne, H. S., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort Reno, Indian Territory. S. O. 53, C. S., Department of the Missouri.

Merrill, J. C., First Lieutenant and Assistant Surgeon.—Now on sick leave, relieved from duty in Department of Texas, and to report in person to the Commanding General, Department of Dakota, for assignment to duty. S. O. 87, A. G. O., April 10, 1879.

Powell, J. L., First Lieutenant and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Fort Griffin, Texas. S. O. 65, Department of Texas, March 29, 1879.

The following named medical officers, having been found by an Army Retiring Board incapacitated for active service, have been granted leave of absence until further orders, on account of disability, to take effect April 1, 1879. Surgeon: J. H. Frantz.—Assistant Surgeons: W. E. Whitehead, T. F. Azpell, H. J. Phillips, J. W. Buell. S. O. 81, A. G. O., April 4, 1879.

Rosson, R. L., First Lieutenant and Assistant Surgeon.—Dismissed from the service of the United States, to take effect March 22, 1879. G. C. M. O. No. 13, A. G. O., February 25, 1879.

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Original Communications.

ART. I.—*Intra-vascular Alimentation: the Nutritive Value of Peptones.**

By GEORGE B. FOWLER, M. D., Instructor in Physiology, College of Physicians and Surgeons, N. Y.

IN cases where the stomach and rectum reject all nourishment, and the patient is plainly dying from starvation, our only resource is the introduction of food directly into the circulation.

The alimentary material hitherto almost exclusively employed is blood, and the accounts of instances where this fluid has been transfused are very numerous and familiar. It is scarcely necessary for me to enter into an historical *résumé* of the subject, it having been quite recently ably given, and it being readily accessible through recent encyclopædias.

There is attached to the operation of transfusion a peculiar interest, and it is almost universally regarded with a lack of confidence.

The results of experiments upon the lower animals have ever been conflicting, and operations upon the human subject are, to say the least, very discouraging.

The proposition to transfuse is at first rather startling, but upon reflection most of us acknowledge its plausibility, and we are not surprised that the ancients regarded the practice as strictly physiological.

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* Read before the New York County Medical Society, April 28, 1879.

The procedure has flourished and declined, to be revived again several times; for there is something so feasible in its conception and brilliant in its hoped-for results, that the profession seems loath to abandon it. And so succeeding generations of us have contended with it, endeavoring to master the principles for its successful performance; but to-day it is the same *ignis fatuus*, as is evidenced by the recent statement of an eminent obstetrician of this city: "The transfusion of blood into the human system holds the position of an operation, the plausibility and theoretical advantages of which all admit, but the absolute utility and practical results of which amount to very little indeed."

The subject of intra-vascular alimentation is a purely physiological one, and it seems to me that its practice should be regulated by a thorough regard for our present knowledge of the laws of nutrition.

The materials introduced into the system by the natural channels are: 1. Albuminous or nitrogenous matter; 2. Hydrocarbonaceous substances; and, 3. Salines and water. These principles exist in ordinary food more or less physically combined. But, having been subjected to the action of the teeth, the saliva, gastric, pancreatic and intestinal juices, marked changes are wrought. Where we had, to begin with, albumen, starch, sugar and fat, we find, as a result of complete digestion, albuminose, glucose, and fat, in a state of very fine emulsion and partial saponification. In fact, the original substances have been greatly altered as regards both their physical and chemical characters, and for the most part can no longer be recognized by their usual tests. These new products, we shall see, possess distinct characteristics which bear directly upon the phenomena of absorption and nutritive assimilation.

Now, the elaborate process to which food is subjected in the alimentary canal previous to absorption can not be merely incidental; that it is all-important and essential I propose to show.

Bernard * injected egg-albumen, pure and in watery solution, into the jugular vein of a dog and found albumen immediately in the urine. He also found the same result to follow the injection of blood serum and defibrinated blood, and the animals subjected to these last experiments all died within twenty-four hours. Pavy * injected 100 grains gelatine dissolved in two and a half ounces of water into the circulation of a dog, which caused the urine to set into a firm jelly on cooling. Similar experiments have been performed by Barreswil and Mialhe † with casein and fibrin, and by myself with solution of egg-albumen, with like results.

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* "Liquides de l'Organisme," tome ii., p. 459, 460.

The effects of the ingestion of large quantities of albuminous and saccharine food are well known. Bernard, Hammond, Becquerel, and others long ago demonstrated that, when these substances from any causes escaped the thorough action of the digestive fluids, they were absorbed by the blood, carried to the kidneys, and thrown off. And I have been in the habit of supplying my classes with saccharine urine simply by taking about four ounces of dried dates or about a tablespoonful of pulverized glucose upon a fasting stomach.

The lesson to be drawn is plain, that the blood will not tolerate any substance which is foreign to its composition, and even will not accommodate an unlimited amount of a material though it be a natural constituent.

This point is well shown in a table given by Magendie ‡ of the proportions of the various sugars necessary to inject into the circulation in order that they may appear in the urine.

Cane Sugar	1
Mannite	1
Milk Sugar	5
Glucose	50
Liver Sugar	240

Bernard, Barreswil, and Mialhe, when they found that solutions of albumen, casein, and fibrin when thrown into the veins would reappear in the urine immediately, did the coun-

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* Gulstonian Lectures, "Lancet," 1863, vol. i., p. 574.

† "Recherches sur la Digestion, l'Assimilation et l'Oxydation Organique ou Vitale," Paris, 1879, p. 33.

‡ "L'Union Médicale," 1849. Nos. 72, 75, 79. Cited by Carpenter

ter-experiment of first digesting these substances in gastric juice and then injecting them. Under these conditions the urine remained normal. The same observers also found that a thorough digestion was necessary, for a simple solution of fibrin and albumen in weak hydrochloric acid was thrown off with the urine.

Professor Flint, Jr.,* in speaking of these experiments, says in a foot-note: "With regard to the experiments of Bernard and Barreswil it is justly remarked by Bernard ("Traité de Physiologie," tome ii., p. 133) that, as the digestion of albuminous principles takes away from them the characters by which they are ordinarily recognized, albumen could not of course be recognized in the urine. In a subsequent account by Bernard of experiments on the injection of albumen into the circulation (Liq. de l'Organisme) there is no mention of the effects of injecting albumen dissolved in gastric juice, though the first experiments upon the injection of albumen are confirmed."

This would indicate that Bernard was not entirely satisfied with his experiments with digested substances; but the other observers, so far as I know, allow their primary results to stand.

Now, as a result of the foregoing considerations and experiments, when the necessity for supplying nutrition is urgent and we determine to introduce it directly into the circulation we must proceed upon physiological principles—in other words, the materials employed should correspond as nearly as possible with the natural digestive products.

As we have said, blood has generally been regarded as meeting these requirements and its failure to meet expectations has been very perplexing. But the difficulty is, I think, easily explained. Blood is a tissue. It is not a reservoir of food prepared for assimilation. In fact it only contains such food incidentally, as a result of natural digestion. It then appropriates what is necessary for its own nutrition as readily as do other tissues.

The blood has a definite chemical composition and physical nature, by virtue of which it performs its several offices. It is by no means wholly employed in supplying the tissues with food, and that by giving up a portion of each of its constituent materials. Many of the substances composing the blood are excrementitious and poisonous, destined to be thrown off. They can not be nutritious. With the blood as with other organs, we can not alter its condition very much without inducing profound pathological states. So that, to my mind, it is as plausible to throw into the circulation filtered solutions of any other tissue or nutritive material, e. g., albumen or casein, as to inject blood, and expect assimilation. There is one class of cases where the transfusion or injection of blood might avail. These are exhaustion from traumatic hæmorrhage. Here what the patient needs is the stimulus of distention; his digestive organs are healthy and the volume of circulating fluid restored. The next meal is properly digested, absorbed, and appropriated, and everything proceeds harmoniously. These are the conditions and causes of success of transfusion upon the lower animals.

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* "Human Physiology," vol. "Digestion, etc.," p. 267.

But it must be otherwise in a case of inanition from chronic hæmorrhage or disease with irritable stomach or rectum. The stimulus of distention to such a case would be of but brief benefit. What is needed is food. The blood suffers equally with the other tissues and is emaciated. The patient can not eat and the rectum rejects enemas. To transfuse such a case would be but filling the blood-vessels with a fluid which is itself not assimilable and which has no source of replenishment, and which too must very soon embarrass the vital operations still more by an additional contribution of waste products. Strong proof that blood is not in a condition for immediate appropriation lies in the fact that when it is taken into the stomach of a healthy person it is not absorbed forthwith as blood; on the contrary, similar changes must be effected as occur in other albuminous foods.

Recently the medical world has had its attention drawn to a series of operations, following the lead of Professor T. G. Thomas,* in which milk has been employed as a substitute for blood in intra-vascular feeding. Professor Thomas injected milk seven times in three patients and reports one recovery. The two fatal issues he attributes, not to the character of the fluid injected, but to the extent of disease and low state of the subject. Dr. Jos. W. Howe of this city had already, a year previously, injected goat's milk into the veins of a tuberculous patient, death occurring four days afterward. In the "New York Medical Journal," for August, 1878, Dr. W. E. Bullard reports a successful instance of intra-venous lacteal injection in a case diagnosed as gastric ulcer. In this case some difficulty was experienced in inserting the canula into the vein, and a quantity of milk escaped into the cellular tissue of the arm, resulting in a troublesome, and at one time very threatening, cellulitis and phlebitis.

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* "New York Medical Journal," May, 1878, p. 449.

During the past year several other trials of this procedure have been chronicled, but the results have in most instances been unfavorable. Now, the advocates of this procedure, the intra-venous injection of milk, base their action, 1, upon the favorable report given by Dr. Hodder, of Toronto, who resorted to it in three cases moribund from Asiatic cholera, two recovering, and, 2, upon the theoretical grounds of its nutritive value. Much stress is laid upon this last point. They hold that milk is not very unlike a product of natural digestion, viz., chyle; and "that in injecting it into the veins we are imitating Nature very closely." But at the same time Professor Thomas depends more for the support of his views, as to the value of intra-venous lacteal injections, upon the practical results obtained rather than upon their chemico-physiological bearings. Yet, in order to illustrate the chemical and physical analogies existing between milk and chyle, this author gives the following comparative tables:*

Chyle.	*Milk.*
Fluid plasma.	Water.
Leucocytes.	Casein.
Fat-globules.	Butter.
	Sugar.
	Soda.
	Chlorides of Sodium and Potassium.
	Phosphates of Sodium and Potassium.
	Magnesia, Lime, Iron and Alkaline Carbonates.

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* Loc. cit., p. 453.

I think the composition of the chyle and milk is more accurately given as follows:

Chyle (Rees).*	
Water	902.37
Albumen	35.16
Fibrin	3.70
Spirit Extract	3.32
Water Extract	12.33
Fat	36.01
Saline Matter	7.11
	1000.00

Milk (Payen).†	
Water	864
Casein 39 and Albumen 4=	43
Sugar of Milk	52
Fat	37
Mineral Salts	4
	1000

Now, in the first place there is no constituent of chyle at all similar to the casein of milk, and we have already seen that solutions of casein thrown into the blood-vessels will not be assimilated. The albumen of chyle is the albumen of the blood and markedly unlike the albumen of milk; for we must remember that the various albuminous bodies met with in organic fluids and solids, although resembling each other in general characters and composition, possess striking physiological differences. The effects of injecting a carbohydrate as foreign to the blood as milk sugar, we have already alluded to.

Milk and chyle each contain fat in a state of emulsion, and it is to this constituent that their similarly white opaque appearance is due. But our comparisons must not be confined to inspection with the unassisted eye. Microscopic examination reveals the fat particles of chyle as mere specks, the largest of which measure only about 2 micromillimetres ($\frac{1}{12500}$ inch) in diameter, while the size of the greater number can not be estimated, being so minute.

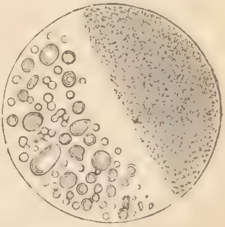

FIG. 1.—MILK AND CHYLE.

Under the microscope the milk globules appear as distinct spherical masses of fat, varying in size from 1 to 20 micromillimetres ($\frac{1}{25000}$ to $\frac{1}{1200}$ inch); and in some specimens I have seen a few globules measuring 62 micromillimetres ($\frac{1}{400}$ inch).

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* Dalton's "Physiology," 1875, p. 369.

† Loc. cit., p. 118.

Taking into consideration, then, the size of the smallest capillary blood-vessels, which is 4·5 mmm. ($\frac{1}{6000}$ inch) (Kölliker) and the additional facts that the milk globule is composed principally of a fat, palmitine, only soluble at about 115° F., and according to good authorities is enclosed in an albuminous envelope, and in view of the results following the injection of casein and albumen, I maintain that intra-venous lacteal injections are unphysiological. I can not conceive how any of the organic proximate principles composing milk shall be digested when introduced directly into the circulation. That they are not digested and that they are speedily ejected, there is abundant experimental proof.

Pavy* injected 3 ℥ milk into the veins of a dog, and in an hour and a half afterward the urine was opalescent and coagulated with acetic acid (showing casein). It also gave albuminous reaction, and evidences of the presence of sugar. In another instance the same observer injected 6 ℥, and afterward found the urine milky and showing large oil drops. This animal died. Dr. Jos. W. Howe also performed similar experiments upon dogs with fatal results. Wolfsberg,† in a series of experiments upon animals with a view to ascertain whether the milk globules were converted into white blood-corpuscles as Donné had stated in 1844, and whether intra-venous lacteal injections would support life, concludes: that the globules disappear and the white corpuscles increase in number, but that it was impossible to maintain the life of the animals by this means. He was equally unsuccessful by hypodermic injections of milk.

Now, in view of all these facts and considerations, it some time ago occurred to me that the only rational rule to adopt in the selection of materials for intra-vascular feeding was that which Nature so emphatically pointed out, namely, that they should be thoroughly digested. And as we are, perhaps, most familiar with the process as it takes place in the stomach, and are able to imitate it with greatest success, the substance with which I have experimented is the product of gastric digestion: Albuminose (Mialhe), Peptone (Lehmann).

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* "Gulstonian Lectures," "Lancet," 1863, vol. i., p. 573.

† "Lancet," December 7, 1878.

Such is the complicated nature of albuminous compounds that their study has ever been attended with great difficulty; and the results obtained by various investigators as to their decomposition products, and the behavior of these with certain reagents, are not altogether harmonious. Some of the pronounced and accepted characteristics of albumen are its coagulability in neutral solutions by heat, the mineral acids and their salts, by tannic acid, alcohol, and by ferrocyanide of potassium acidulated with acetic acid; its conversion into acid albumen (syntonin) by any weak acid and into alkali-albuminate by a strong alkali. Neither acid albumen nor alkali albumen is affected by boiling, but both precipitate when rendered neutral. Coagulated albumen is soluble in all vegetable acids except tannic, and in caustic alkalies, and also in an excess of concentrated hydrochloric, nitric, and sulphuric acids.

Albuminous solutions when treated with the reagents of Trommer's test, cupric sulphate and liquor potassæ, assume a purple hue which deepens by boiling.

Solutions of pure albumen manifest a marked indisposition to traverse animal membranes, and are therefore generally described as practically indiffusible.

Having been submitted to digestive action, albuminous substances present certain characters indicative of important changes having been effected. They are now no longer precipitated by either heat, acid, or alkali; they show a red color with the reagents of Trommer's test, and they pass with great readiness through membranes. In short, a new substance, albuminose or peptone, has been found, possessing physiological properties entirely distinct from crude albumen, properties which look toward its absorption and assimilation.

The nature of this change has been the subject of much study and speculation, but it is sufficient for our present purposes to say that all are agreed as to the fact, and regard peptone as the first step in the preparation of albuminous bodies for use in the economy; and the experiments previously narrated show that, without this step, albumen is not appropriated.

In order to effect the conversion into peptone, the presence of both acid and pepsin is necessary; for pepsin alone has no perceptible effect, and hydrochloric acid simply forms acid albumen (syntonin). In order to imitate gastric digestion, and study the different stages of the process, the following directions may be carried out: A quantity of pure-washed fibrin, or finely-chopped coagulated white of an egg, is placed in a large, shallow bowl, and a ·2 per cent. solution of hydrochloric acid added in quantity sufficient to exceed the solid material by volume four or five times. Very soon the mass begins to swell and become transparent, and within about an hour the whole is converted into syntonin, and has assumed a gelatinous consistence. The acid has performed its part, and we now pour on a thin layer of a glycerine solution of pepsin prepared as follows: The stomach of a pig is carefully washed by allowing a gentle stream of water to play upon the interior and the mucous membrane, then removed, cut up into thin pieces, placed in a vessel, and glycerine added so as to about cover the strips. Two or three days are necessary in order to exhaust the mucous membrane of pepsin, the glycerine in the mean time having been several times strained off an drenewed. Having added the glycerine-pepsin to the swollen albumen or fibrin, the whole is to be kept at a temperature of about 100° Fahr. In a short time the solid material begins to dissolve with the evolution of little bubbles of gas, and at the end of about six hours—according to the activity of the ferment and its proportion in the mass—the process is complete. Now strain off the solution and afterward filter, when a perfectly clear amber-colored acid solution of peptone, syntonin, and, perhaps, some albumen which has not undergone change, is obtained. Then neutralize this filtrate with sodium carbonate, which will precipitate the syntonin; filter and boil. Any albumen present will thereby be thrown down, and must be gotten rid of by again filtering. The final product is a neutral solution of peptone, which can be evaporated down to any desired degree of concentration.

This solution should possess each of the properties before alluded to, namely, to be unaffected by heat, acids (except tannic), or alkalies, to strike a decided red color at once with Trommer's test, to diffuse or filter with ease, and to be precipitated by alcohol, tannic acid, mercuric chloride, and silver nitrate.*

It has long been known that a body closely resembling peptone could be produced by boiling a protein substance for several days in simple water under pressure, for a shorter time with dilute acid, or for a still shorter period with strong acid. I have tried this process extensively. The product obtained is occasionally perfectly satisfactory, but at other times there is developed a very disagreeable, bitter taste, which it is impossible thus far to account for or do away with. The crude product of this process by hydration, whether with pure water or with acid, is a pultaceous mass which, under the microscope, is seen to be composed of muscular fiber, when meat is used, swollen and in a state of fine comminution. The filtrate, when evaporated down, is a clear, red liquid, showing the absorption bands of muscle-color before the spectroscope, and containing albumen, syntonin, and peptone, besides the salt and extractions of meat.

By this method there is always a great amount of residue remaining upon the filter which cannot be utilized ; in other words, the process seems to be an incomplete one. Attempts to hydrate blood and milk were not in a high degree successful. A great objection to the use of strong acid is the necessity which subsequently arises of adding a proportionately large amount of sodium carbonate in order to neutralize the fluid; hydrochloric acid having been employed, the result is a solution of sodium chloride disagreeable to taste and unfit for therapeutic uses. So that, after all, the most perfect and satisfactory method for the production of peptone is by hydrochloric acid and pepsin.

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* A very full *résumé* of the history of researches upon peptone, and accounts of very elaborate experiments undertaken to determine its nature, rôle in the economy, etc., are given by Dr. Adam Adamkiewicz, in a monograph "Die Natur and der Nährwerth des Peptons," Berlin, 1877, in "Berliner klin. Wochenschrift," No. 2, 1878, and in "Archiv. für path. Anat. und Phys.," Bd. 75, Hft. 1, S. 144. Adamkiewicz says that the substance hitherto isolated and called peptone is not such, but represents only a step in the direction of the perfect material. True peptone he obtains by repeated precipitation of the product of digestion by absolute alcohol, allowing the precipitate to remain a long while in contact with the alcohol. The final product is a substance which differs from albumen in that it is soluble in hot water and coagulates (stiffens) in cold. "Cold water and all reagents which precipitate raw albumen throw this body down so long as it is in the cold."

Many of the conclusions of this author, regarding the chemical and physical properties of peptone, are in direct antagonism to the usually accepted view, and are yet to be verified.

The desired substance having been obtained, I proceeded to experiment upon animals. My object was to ascertain what would be the result of intra-vascular injection of peptone; whether it would prove nutritious when thus employed, and what were its properties in this respect when given by the rectum and subcutaneously.

The animals used were rabbits and a cat, and I operated by injecting the material directly into the jugular, and in one instance into the femoral vein. The quantity of peptone solution employed varied in rabbits from 15 c.c. to 30 c.c., and in the cat 150 c.c. were injected, this animal having been previously deprived of about that volume of blood. The concentration of the specimen was such that 1 c.c. contained 2 grms. of digested meat.

During the experiments there were no alarming symptoms that could be detected; the recovery from etherization was as usual, and the subsequent behavior gave evidence of the animals being in a perfectly comfortable state. The entire urine voided during the two days succeeding the operation was collected and found to present no abnormal features; in no instance could either albumen or peptone be detected. Had there been intolerance of peptone by the blood we should certainly have been able to detect it in the urine by means of mercuric chloride, Trommer's test, reagents, or copper sulphate solution, all of which behave in a characteristic manner with this substance.*

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* Tannic acid precipitates mucus, of which the urines of rabbits and cats contain a large amount, and silver nitrate throws down the chlorides of the urine; therefore we are debarred the use of these agents in testing for peptone in such situations, unless we go into a very extensive differential analysis.

Although the results of my experiments are the same as those of Mialhe and Barreswill, there is this difference in the conditions: that I employed excessive amounts of the digested material, and in one instance bled the animal operated upon almost to syncope previous to injecting.

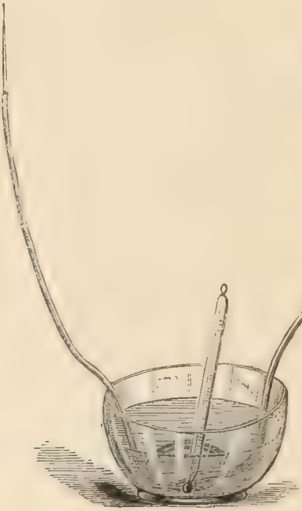
I do not comprehend the bearing of Bernard's remarks, quoted and endorsed by Professor Flint, wherein he seems to distrust his own previously reported researches upon this subject, urging as a fallacy that, inasmuch as the digestion of albuminous principles takes away from them their ordinary characters, we should not expect to recognize albumen in the urine. We should not look for albumen under such circumstances, except as a result of congestion; what we do look for is peptone, and are quite able to demonstrate its presence should it be excreted.

Although these trials were perfectly satisfactory, and led me to believe that the procedure, as conceived at the beginning, was a physiological one, my convictions were greatly strengthened, as to its remedial value, by the results attending its practice upon the human subject.

The case was one of exhaustion from hæmorrhage, arising from erosion of a branch of the uterine artery by cancer of the cervix. On the 24th of March, 1879, my friend Dr. Paul F. Mundé communicated to me that he had had under his observation such a case for a year; that there had been frequent bleedings during this period up to a week before, when a number of severe hæmorrhages occurred in rapid succession, which very greatly prostrated the patient. For some days she had retained nourishment with difficulty, a few tablespoonfuls of milk and a few oysters, at best. Finally, the stomach rebelled against everything, except a little milk given very cautiously by the teaspoonful. "The vagina being tightly tamponed, precluded the use of nutritive enema, and, in view of her extremely exhausted condition, the case was looked upon as a fit one for transfusion" (Dr. Mundé's report). Being aware of my investigations, Dr. Mundé consulted me, and expressed his willingness to inject a solution of beef peptone into the veins of his patient, and accordingly on the following day we proceeded to do the operation.

The apparatus employed in this instance and in my experiments is essentially that used by Professor Thomas for injecting milk; the only difference is that I have provided for maintaining the fluid at the proper temperature (100° Fahr.) by attaching to the funnel an India-rubber tube of greater length, in order to permit of several coils being made in a basin of warm water, in which a thermometer is placed; and I also use as a canula a strong glass tube, of about six inches in length, drawn out to a fine, tapering point. This latter device enables one to detect any solid particles or air-bubbles in the fluid, and prevent their entrance into the circulation. This simple instrument is pictured in Fig. 2.

Fig. 2.



The funnel having been filled with the peptone solution, the basin with warm water, and the fluid permitted to flow through the tube to expel the air, and the tube then pinched above the canula (it was easy to keep this fine extremity absolutely full by atmospheric pressure), the apparatus was in readiness. After some difficulty in inserting the nozzle of the tube into the median basilic vein, the connection was successfully made, and very gradually we allowed two ounces of the material to enter the vessel. At this point a most unfortunate accident occurred to our apparatus, in that the India-rubber tube split off from the neck of the glass funnel, necessitating the withdrawal of the canula from the vein; and, the break having been repaired, we were unable to reënter. In the efforts to do so, about a half ounce of our solution was injected into the cellular tissue. The patient had the usual alarming symptoms following similar operations, but that night slept well, and took a pint of milk. She was able thenceforth to take food by the mouth, and continued to improve in strength. The fluid unintentionally injected into the cellular tissue of the arm was absorbed, and gave no trouble.*

This woman received about six ounces of digested beef. I am perfectly satisfied that it saved her from starvation, because she could take food no other way. The amount injected has been criticised, that it was not sufficient. In reply to this I must say that it seemed to be just about enough. There is no standard in this matter as yet.

By thus supplying the blood and tissues with a quantity of digested material sufficient to restore the physiological balance but for a short time, we bring about a condition which permits us to give food in the natural way.

Further investigations were made by trying the effects of exclusive feeding by subcutaneous injections of peptone. A rabbit and cat thus treated received respectively what corresponded to about four and eight ounces of beef per day for a week, water being allowed *ad libitum*. The results were a maintenance of weight and every evidence of comfort. It was interesting also to note that in no instance did the urine contain albumen or peptone, and that the absorption of the fluid was very rapid and unattended by any inflammation of the skin or cellular tissue. Comparative experiments made with equal volumes of egg-albumen solutions showed absorption to be much slower, and when a considerable amount of this substance was used the urine became turbid by heat and nitric acid.

A rabbit received the equivalent of about four ounces of meat per day into the rectum, and was thus sustained a week without loss of weight.

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* For fuller details of the case, see the "Am. Jour. of Obstetrics," July, 1879.

In conclusion I will say that, although these experiments have not been very extensive, their results are in complete harmony with the theoretical considerations which first suggested them; and that the reports received from several physicians who are using peptonic solutions principally per rectum, in their practice, together with my own experience in several cases now under observation, lead me to think that in this digested material we have a valuable therapeutical aid.

I propose to continue my observations upon this subject especially as to the advantages of adding to this albuminous product grape sugar and emulsified fat, theoretically a perfect food.*

Art. II.—*Neurotomy of the Superior Maxillary Branch of the Trigeminus, including Neurectomy of the Spheno-palatine Ganglion for the Relief of Tic-Douloureux.*

By Frederic S. Dennis, M. D., Demonstrator of Anatomy, Bellevue Hospital Medical College, New York.

The use of the knife for the relief of neuralgia and the cure of diseases characterized by motor disturbances belongs to the resources of modern surgery.

The anatomical and physiological errors in regard to the nervous system, which had been taught by Galen and his school, continued to influence the theory as well as the practice of medicine throughout the Middle Ages. Not until the experiments of Cruikshank and others had proven that a section of a nerve-trunk did not cause permanent paralysis of the parts supplied by the nerve, and the clinical observations of John Warren in 1830, of Delpech, of Velpeau in 1830–'38, of Sir Astley Cooper, had shown that a section or resection of a nerve was often attended by the most satisfactory results: not until these experiments had been made did the theories of Galen lose their influence, and operations upon the nervous system come to be recognized as justifiable.

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* The peptone which I have used was made with the coöperation of Messrs. James Gaunt & Co, 77 Varick St., from whom it can now be obtained and to whom I take great pleasure in expressing my thanks for their courtesy and untiring zeal during the months consumed in perfecting the process and machinery for the production of this product.

Of all of the so-called nervous disorders, for the relief of which an appeal has been made to the knife, in no other one has it more frequently been used than in neuralgia; and the literature of neurotomy, or of neurectomy, as a legitimate procedure, has developed about the treatment of this obstinate and oftentimes incurable complaint.

The scalpel, however, as abundant literature shows, is as yet far from being recognized by all as the classic means of curing neuralgia. While there are many who are willing to admit that it should be used as a *dernier ressort*, there are others who fear to make use of it under any circumstances.

The consequences of the use of this instrument, say some, are oftentimes more grave than the disease which it endeavors to cure. "It is not, however, the accidents which often attend, and the infirmities which follow these operations, that have done the most to bring them into disrepute, but because they seldom cure the evils for which they are performed."

Velpeau refers to a man fifty-five years old who submitted to several operations for the cure of a chronic neuralgia, in which all the nerves of the face were cut without the patient's obtaining any relief from his tortures.

Stromeyer teaches that neurotomy brings only momentary relief, and fails in any case to cure the disease. Wagner, of Königsberg, has given his views quite positively upon this subject, and recommends the section of nerves only in the case of peripheral neuralgias, after the arsenal of therapeutics has been exhausted.

Otto Weber, of Bonn, has taken a middle place, and, although recommending surgical operations upon the nerves for the removal of neuralgia, does not advise the section of large trunks.

In performing neurotomy, he says, a wound is made, which, by the counter-irritation it produces, may for a time remove the pain, which, however, sooner or later returns.

This operative procedure should be banished from surgery when it is invoked for the cure of a neuralgia that is central in its origin.

On the other hand, says M. Létiévant, "Success is the rule, and failure the exception." This enthusiast of nerve sections, who has given rules for determining the course of the distribution of almost every nerve of the body by means of fictitious lines, muscular and bony prominences, and relations to arteries, claims for this operation many cures, immediate, continuous, radical.

"We can not blame," says M. Sedillot, "the boldness of surgeons who recommend neurotomy or neurectomy for the relief of neuralgia, inasmuch as the sufferings of the patient are intolerable, and bring them into a willingness to endure anything so that they may be delivered from their misery."

M. Nélaton recognized in such operations a cure for many protracted and rebellious neuralgias. Fauçon, in a thesis entitled "Resection of the Nerves in Nervous Affections," has embodied the opinions of the school of Strasburg, and given the indications which should be the guide to surgeons in this department of operative surgery, and writes: "Resection of the nerves, although often followed by relapses, is nevertheless preferable to all the other therapeutical measures, inasmuch as it is generally practiced after the latter have been tried to no purpose, and because with a modicum of danger it almost invariably procures for the unfortunate victim of neuralgia a temporary relief, and in some cases a complete cure. In nerve sections, Jaccoud recognizes the highest resource of medicine . . . . which alongside of many reverses can boast of the successes of Patruban, Schuh, Beck, Bruns and Sedillot.

Differences of opinion and of practice such as those which have already been mentioned, and which at first sight seem to leave the subject of neurotomy for the cure of neuralgia an open question, will be found upon careful study to be due to erroneous theories concerning the disease and its treatment. Such errors, combined with empirical methods, and failure to select proper cases, errors of diagnosis and unscientific pathological deductions, produced at one time a general protest against this method of operating; so that for twelve years, 1840–'52, it is difficult to find the report of a single case of neuralgia treated by the use of the knife.

To the polemics of Stromeyer and his school modern surgery is indebted for this protest, which, more than any other one thing, has led to the adoption of the more correct theories and successful practices of the surgeons of the past twenty years. And although much still remains to be done before it can be said that the physiology and the pathology of the nervous system have been advanced to their ultimate limits, enough has already been done in this direction by the laborers during recentyears of such investigators as Erb, B. v. Langenbeck, Rosenthal, and Nussbaum, of Germany, Vulpian, Charcot, Brown-Séquard, of France, Callender and Hughlings Jackson, of England, Weir, Mitchell, Morehouse and Keene, of America, to revolutionize in many respects the surgical treatment of nervous diseases, and to restore to its proper place the section of nerves for the relief of neuralgia.

The discovery by Magendie of sensibility in the peripheral ends of the anterior roots of the spinal cord, and the more complete elaboration of the theory of recurrent centripetal sensibility, by Claude Bernard, Longet, Arloing, Tripier, and others, at a later period, have been of the greatest value in the study of the treatment of neuralgia, and justify the section of nerves for neuralgia as much as hæmorrhage warrants the ligature of a wounded artery.

Prior to these discoveries the opinions that prevailed have been well formulated by Müller, into a series of rules which are substantially as follows:

First.—Irritation of a branch of a nerve is attended with sensibility limited to that part of the body which is innervated by that branch, an irritation which never produces a sensation in parts supplied by other branches, either of the same nerve or of the same plexus.

Second.—If a part of the body is supplied with sensation by means of a plexus of nerves, after paralysis of one of the nerves which forms the plexus, the remaining nerves can not maintain sensibility throughout the plexus, and the extent of sensibility will depend upon the number of filaments that remain intact.

Such, in brief, were the accepted doctrines when, in 1864, Laugier reported to the Academy of Sciences the clinical history of a man in whom sensibility returned into the hand along the tract of the median nerve a few hours after the section of that nerve: and the query was how to account for the sudden reappearance of sensation in this crucial case. A belief in immediate reunion could not be accepted, for the experiments of Phillepeaux and Vulpian had conclusively proved that a much longer time must elapse before a nerve, even if placed in the most favorable circumstances, could unite, while according to Müller's theories the solution of this perplexing riddle could only be obtained by assuming the existence of an anomalous distribution of the radial and ulnar nerves. But, notwithstanding this conclusion, equivalent to a *petitio principii*, Richet, in 1867, after having had an opportunity of studying a case similar to the preceding, accounted for the prompt return of sensation after section of the median nerve by the presence in the peripheral end of the nerve of recurrent or anastomotic fibers derived from the radial and the ulnar nerves—a theory which, in the light of modern discoveries, is altogether correct.

Such a theory stands the test of facts, and M. Claude Bernard, in his report to the Academy of Sciences upon the labors of MM. Arloing and Tripier in 1875, said: "This study of recurrent sensibility of nerves is not only interesting from the standpoint of experimental physiology, but this property of nerves also accounts for many clinical phenomena, which can not otherwise be explained."

In a paper read before the Academy of Sciences, these two physiologists embodied the results of their experiments, which were made upon the toe of a dog, to verify the correctness of their hypothesis as to the existence of recurrent centripetal fibers in the terminal nerve plexuses of the body, somewhat as follows:

Three of the four nerves of the toe were carefully cut, and an hour or so afterward sensibility to pain and touch was found at all points of the toe. The preservation of only one of the nerves was sufficient to convey to the sensorium impressions made upon any part of the toe.

This persistence of sensation in all the parts of the toe could only be accounted for by supposing that fibers (recurrent centripetal fibers) derived from the uncut nerve existed in the territory of the cut nerves, and through them communication between the centers and all parts of the surface of the toe was maintained.

Their theory was verified by facts, inasmuch as, a month after the section of three of the digital nerves, these experimenters discovered a number of fibers in the peripheral ends of the nerves that had been cut that had not undergone degeneration, while, in the nerve that had *not* been cut, fibers that *had* degenerated were also found; consequently, they concluded that the sensory nerves of any region are in the relation of mutual dependence as regards one another, and are not, as regards their function, isolated. Further experiments upon the lower animals, horses, dogs, cats, demonstrated also that these accessory or recurrent fibers are most abundant in the terminal plexuses of the nerves; that their number decreases inversely as the distance from the surface of the body, and that a point upon the nerve-trunk may finally be reached at which all recurrent fibers terminate. Such points have been determined by them for the nerves of the face, and those of other parts of the body.

These brilliant experiments throw a flood of light upon the physiology of the nerves, they interpret clinical facts, and suggest for the treatment of neuralgia more rational methods than those that have heretofore prevailed. They also teach:

1. That peripheral neuralgias are of much more frequent occurrence than the theories of Vulpian, Anstie, and others will allow, who claim that the great majority of alterations of nerve-tissue, causing neuralgia, are located, either primarily or secondarily, in the nerve-centers.

2. They aid in discovering the site of a material lesion of the nerves, whether it be of central, or of peripheral origin; a question of the first importance, and one that should carefully be determined before any treatment is begun.

3. They justify the section of adjacent nerves (polyneurotomy) for the treatment of peripheral neuralgias which continue after the section of a single nerve (mononeurotomy).

4. They show that a neuritis, perineuritis or sclerosis of the facial may, by involving the recurrent fibers of the trigeminus, produce trifacial neuralgia (reflex neuralgia):

5. That failures, following certain cases of resection of nerves for the cure of peripheral neuralgia, are no arguments against the method of operation, but indicate an error of diagnosis as to the location of the cause:

6. That an atrophy, a degeneration, an inflammation, sclerosis, neuroma, exostosis, periostitis, a foreign body, or any other cause by which the nutrition of a nerve may be impaired, produces neuralgias more amenable to treatment if they affect nerve-trunks than if they involve the terminal filaments of nerves:

7. That neurectomy is more likely to be successful than neurotomy, if the neuralgia is due to changes in the periphery of nerves:

8. That these cases of neuralgia will terminate most favorably after an operation if a primary lesion of the nerve centers can not be discovered, and provided the cause producing the neuralgia is at a point sufficiently near to the brain or spinal cord to be free from recurrent fibers of adjacent nerves:

9. That operations will prove successful according as they are performed sufficiently near to the nerve-centers to include all the direct fibers of the nerve which is diseased, while excluding all the indirect fibers of adjacent nerves.

As thus far pursued, the study of neuralgia and of its treatment has been, for the most part, a study of the cause and treatment of facial neuralgia; for neuralgia was first recognized by Arétée as a distinct disease in connection with pain along the tract of the trifacial, and it was for the cure of a rebellious neuralgia of the face that neurotomy was first performed by Maréchal, surgeon to Louis XIV.

The superior maxillary branch of the trigeminus, which is contained within a bony canal, rendering disturbances of its nutrition by pressure of the slightest degree possible, and which is also connected by Meckel's ganglion with other nerves of the face, has always been a favorite seat of neuralgia, and has afforded for nearly two centuries opportunities for the display of bold, conservative, successful surgery.

No nerve offers more satisfactory and gratifying results than the superior branch of the trifacial nerve when neurectomy is performed upon it, provided only the proximal section of the nerve be made between Meckel's ganglion and the foramen rotundum, so as to include all the direct fibers of the main trunk, while excluding all the recurrent fibers which are derived from the ganglion through its branches of distribution to the superior maxillary nerve.

Leaving the consideration of the theory of neurotomy as a cure for facial neuralgia to record the facts, the cases will be classified and arranged chronologically as regards the duration of relief from pain which was obtained by the operation.

The *first* class will include all cases in which the patients continued free from pain for twelve to eighteen months or longer.

The *second* will contain those in which pain recurred at some time between the sixth and the twelfth month.

The *third* will comprise those cases in which relief continued for a period varying from one to six months only.

The *fourth* will include all those in which pain returned during the first month.

The *fifth* class will be made up from the cases in which no pain was felt so long as patients remained under observation in hospital or elsewhere, but which, on account of the short time of observation—usually one or two months only—are not evidences for or against the merits of the operation.

Finally, in determining the successes, each one must judge according to his ideas of what constitutes success, recollecting that Stromeyer, who represents the views of the bitterest opponents of this method as well as of all others which require the use of the knife in the treatment of neuralgia, declares that fourteen months relief from pain does not constitute success, while on the other hand Létiévant, after the analysis of several hundred cases of nerve sections for the cure of neuralgia, states that relapses generally occur during the first few days subsequently to the operation, and that the cures which have survived the first few weeks should be regarded as radical, successful, complete.

What are the facts?

Obs. I. Joseph Jones, æt. 42, U. S. Dr. James R. Wood.—Consulted me at my office March 20, 1866. He had suffered for several years with facial neuralgia, the right superior maxillary nerve and its branches being the organs affected. During the last year his suffering was intense. He had been treated by many medical men, and all forms of narcotics and anti-periodics were given in large doses, without permanent benefit. The infra-orbital nerve had been subcutaneously divided repeatedly with but slight relief. His habits had always been good. He had led a sedentary life, his occupation being that of a clerk. I proposed to him the exsection of the superior maxillary nerve, at the point where it makes its exit from the foramen rotundum of the sphenoid bone into the spheno-maxillary fossa. I explained the operation to him, and he being an intelligent man, I invited him to witness the operation on the dead body at my private room at Bellevue Hospital Medical College. He witnessed the operation and wished me to perform it upon him at an early day. On April 2, 1866, I caused him to be put under the influence of sulphuric ether, and performed the following operation. The patient was placed in a chair in a reclining position. The day being a bright one fortunately, I placed him near a window, so that the rays of the sun fell upon his face, which enabled me to see with distinctness the most profound steps of the operation. I then made an incision, commencing near the inner canthus of the right eye, carrying it in a semilunar shape, until I reached a point a little below, and without the outer canthus of the eye. I then dissected up the flap; I then made a perpendicular incision, extending from a point opposite the center of the convex edge of the crescent-shaped incision, to near the vermilion border of the upper lip, without opening the buccal cavity. I then reflected back the integument to the right and left, being careful not to include any other tissues. I then dissected down to the superior maxillary nerve, where it makes its exit from the infra-orbital foramen. I proceeded to dissect out the branches of this nerve as far as practicable. These branches when the dissection was completed resembled the corda equina of the spinal cord in a miniature form. I then dissected away all the areolar and adipose tissues down to the periosteum. I then carefully separated the periosteum, and reflected it from the anterior surface of the superior maxillary. I then with a trephine carefully removed the anterior wall of the antrum of Highmore, leaving the inferior orbital foramen intact, with the branches of the nerve reflected upon the superior flap. I then with a smaller trephine removed a disk of bone from the posterior wall of the antrum, which exposed the spheno-maxillary fossa.

There had been but little hæmorrhage during the operation until then, when there was a welling up of blood from the spheno-maxillary fossa. A sponge attached to a holder was introduced, and pressure made for a few moments, when the bleeding ceased. I then commenced to break up the inferior wall of the infra-orbital canal beginning at the inferior portion of the infra-orbital foramen, being careful not to injure the nerve. This I did with a small chisel and a strong pair of scissors. I then dropped the nerve into the antrum and traced it without any difficulty through the spheno-maxillary fossa, to the distal end of the foramen rotundum where the nerve makes its exit into the spheno-maxillary fossa. I then with a pair of long curved scissors divided the nerve at a point where it made its exit from the foramen rotundum into the spheno-maxillary fossa. I then broke up Meckel's ganglion, which lies at the inner aspect of this nerve at this point. After waiting a short time, there being no hæmorrhage, the integuments were brought together with interrupted silver sutures and adhesive strips, after thoroughly bathing the parts with carbolized water. There was a tent introduced at the lower angle of the perpendicular incision, to permit the discharge of blood or pus which might occur, then a compress of carbolized jute was placed over the wound and retained by adhesive strips. The patient came readily from under the influence of the ether. I remained with him for about an hour after the operation, during which time he did not suffer any pain. Having been in the habit of taking morphine for a long while, I ordered a grain of morphine to be given at bedtime. I found him the next day free from pain, having passed as he expressed it a "heavenly" night. His pulse was 90, skin hot and dry, temperature 100°. I ordered spirits of mindererus, an ounce once in two or three hours. In the evening his pulse was 88, temperature 99°, and I ordered one grain of morphine at bedtime. I saw him each day, and no unpleasent symptoms occurred, and on the sixth day the wound had entirely healed, with the exception of the inferior angle of the perpendicular incision. There was but little discharge of blood or pus from the dependent opening. The perpendicular incision entirely healed on the eighth day, and in three weeks after the operation he called at my office, saying that "Richard was himself again." I saw him occasionally for two years after the operation. He informed me that he had not suffered any pain since he came from under the influence of the ether. I then lost sight of him, as he had removed from the city.

Obs. II. Exsect. sup. max., including Meckel's ganglion, from the foramen rotundum to the infra-orbital foramen. (Wood, James R., Emeritus Professor of Surgery Bell. Hosp. Med. College, N. Y. Unpublished letter, 1876.)—Wm. S. R. Taylor was admitted into Bellevue Hospital, October 6, 1873. He was born in Scotland, and is at present fifty years old. Has been a telegraph operator for a number of years, but was obliged to abandon his position on account of facial neuralgia. Family history is of no special importance, aside from the fact that some of his ancestors had been similarly affected. Patient has been for the most part well, and lived along time in South America, where he suffered from malarial fever.

No history of specific disease can be obtained from patient, and inspection does not disclose any of its lesions. He is addicted to no bad habits, but drinks occasionally. Ten years ago he began to suffer from left infra-orbital neuralgia, and was a victim of this malady to the time of his admittance to the Hospital. Everything in the way of drugs had been tried to free him from the excruciating pain with which he had for many years been afflicted. Two unsuccessful operations upon the infra-orbital nerve at the foramen of the same name had been already performed, but to no purpose.

In this deplorable state of mind he came to me, willing to sacrifice his life to be free from pain.

On the 25th of November, less than four weeks after the operation, the patient left the Hospital entirely free from pain.

In March, 1876, having the previous year called upon Mr. Erichsen in London, who examined this very interesting case at that time, the patient visited me at my office and said he had not had the slightest intimation of the presence of his old and dreaded enemy since leaving the Hospital.

Obs. III. Exsect. sup. maxil. nerve (Schuppert, New Orleans. Private letter from Dr. Schuppert to Professor Conner, "Am. Jour. Med. Sciences," 1870) : "After the lapse of several years no return of the pain has taken place." Also see private letter from Dr. S. to Professor Blackman, "Cincin. Am. Jour. Med. Sciences," 1869, concerning this case : "There has reappeared at different times a neuralgic pain, but of such an indifferent character that . . . . he has not been prevented from attending to business, a condition which, if not satisfactory to the professional fault-finder, is at least so to the men who are the true judges in such controversy." About two years after the operation, patient was in the satisfactory condition above reported.

Obs. IV. Exsect. of the trunk of the second branch of the fifth pair of nerves beyond the ganglion of Meckel, for severe neuralgia of the face, etc. (J. M. Carnochan,* Professor of Surgery in the N. Y. Med. College, etc., "Am. Jour. Med. Sci.," new series, vol. xxxv.). Upon a man sixty-nine years old, who for five years had suffered from severe facial neuralgia, which utterly incapacitated him from pursuing his profession of medicine. Carnochan exsected the nerve at its exit from the foramen rotundum. Relief was immediate. The nerve was found much larger than normal, neurilemma was very vascular, and the nerve proper engorged and red. The length of nerve removed was a little more than an inch and three quarters. Fourteen months after the operation, patient was free from pain.

Obs. V. Exsect. of the trunk of the inf. dental nerve, together with that of the second branch of the fifth pair of nerves beyond Meckel's ganglion for severe facial neuralgia. (George C. Blackman, M. D., Professor of Surgery in the Medical College of Ohio, etc., "Am. Jour. Med. Sciences," 1869, vol. ii., p. 69.). Upon a woman who had suffered for fourteen years from a "violent headache and toothache." In 1866 a portion of left inferior dental nerve was exsected. Pain subsided and did not return for several months. Seven days after the exsection of the inf. dental nerve, which did not remove the pain from the upper jaw, Dr. B. performed Carnochan's operation for the removal of the second branch of the fifth pair beyond Meckel's ganglion. Sixteen months after the operation, the patient had had no return of pain. Twenty months after the operation pain returned.

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* Carnochan was the first one who performed this operation.

Obs. VI. Section of the sup. max. (Dr. A. Wagner, Professor of Surg., Koenigsberg. "Arch. fur klin. Chirurg.," Langenbeck, vol. xi.) Upon a woman thirty-five years old, who for fourteen months had suffered from a neuralgia of the superior and posterior dental nerves. Neuralgia ceased at once, and twenty months after the operation pain had not returned.

These cases comprise the first class. So far as is known in none has pain ever recurred, the case of Obs. V. alone excepted. (See sequel of a case of exsection of the trunk of the inf. dental, together with the second branch of the fifth pair of nerves beyond Meckel's ganglion, for severe facial neuralgia. Blackman, etc., "Am. Jour. Med. Sciences," 1870, vol. ii., p. 373.) They are sufficient to contradict Stromeyer, where he says that neurotomy only affords momentary relief.

Obs. VII. Exsect. sup. maxillary nerve, etc. Wood, Jas. R., Emeritus Professor Bellevue Hosp. Med. College, N. Y. Unpublished letter, 1870.—Emma B. was sent to me with reference to the relief of facial neuralgia. She stated that she had been under the care of several physicians at different times, who had performed at different times subcutaneous operations upon the infra-orbital branches, but to no purpose.

She consulted me with a view of having the superior maxillary nerve extirpated, and I finally, at her request, determined to operate upon the superior maxillary nerve high up, at a point as near as possible to the foramen rotundum of the sphenoid bone. On the 29th of September, 1869, after a thorough examination, and after a consultation upon the question of an operation with my colleagues, it was decided to exsect the nerve. The patient having been put under the influence of an anæsthetic, the operation was performed in accordance with methods which I have given in a previous letter. She came out of the state of anæsthesia very nicely, and from the time she recovered consciousness, for four months (January 29, 1870), she never experienced a pain in the face.

The wound was treated in the same way as the first-mentioned case, and no unfavorable symptom occurred to delay a speedy recovery.

Patient called upon me in June, about nine months after the operation, to state that new pains had come into the lower jaw, which, upon examination, were found to be in the course of the inferior maxillary nerve. Donovan's solution was prescribed, but, notwithstanding its use, the pain remained.

Her family physician, Dr. Daly, at Dr. Wood's suggestion, determined to remove a portion of the nerve at fault. He made an incision along the lower edge of the inferior maxilla, and having exposed the periosteum, which was carefully separated from the bone, the bone was trephined in four places.

The operation, performed in August, 1874, has been followed by entire cessation of the pain.

The case was heard from many months after this last operation, and up to that time patient had been perfectly well and altogether free from pain.

Obs. VIII. Exsect. sup. maxillary nerve, etc. Wood, James R., New York. Unpublished Letter. 1877.—Michael Doyle was admitted into Bellevue Hospital January 13, 1870. Five years prior to his admission he was attacked with a severe pain in the region of the upper lip, which extended from thence upward toward the left eye. The pain, which was severe in character, continued for about two years, then spontaneously ceased. He can assign for the attack of neuralgia no other cause than that of sleeping on the damp ground. After an intermission of the pain for six months, it returned, and was more severe than at first.

The present attack has continued nearly two years, and, although every drug has been employed to relieve him of his excruciating pain, no remedies have succeeded in doing so.

Family history shows no hereditary tendencies. Physical examination reveals normal lungs and heart. His life has been exemplary as regards drinking and smoking.

January 29, 1870, I extirpated, by methods already described, the superior maxillary nerve and Meckel's ganglion. The wound was then closed, the lower part of the left vertical incision being left open in order to allow free drainage. The wound healed normally, and nothing unfavorable occurred to delay repair. Patient continued free from pain for several months (5–7), when pains of a neuralgic character appeared in the tract of the inferior maxillary nerve.

I cut down upon the inferior maxilla and trephined it over the dental canal. I also, by means of a bistoury introduced into the mouth, divided the nerve just as it makes its entrance into the dental foramen.

Subsequently to this operation, a small piece of necrosed bone came away, but the patient had not, up to the time of his discharge from the hospital, which took place a month or so later, experienced any pain of the face. (May, 1873.)

In June, 1875, the patient returned to hospital, professing to suffer from his old enemy. He has become a confirmed opium-eater, and begs for the drug in a slavish and imploring manner. He has been carefully watched for many months, and the results of these observations have confirmed me in the belief that he suffers more from being deprived of the pleasure of opium-eating than from any actual pain. His appetite is very good, and he sleeps well, and, if he gets a hypodermic injection of a liquid resembling in appearance Magendie's solution, he is as comfortable and sleeps as well, whether it be morphia or distilled water, provided only the substitution is not too long continued at any one time.

November 7, 1877.—An abscess has formed on left buttock. An opening having been made, an immense quantity of pus was discharged.

9th.—The patient was given Magendie's solution ♏ 130, besides bromide and chloral.

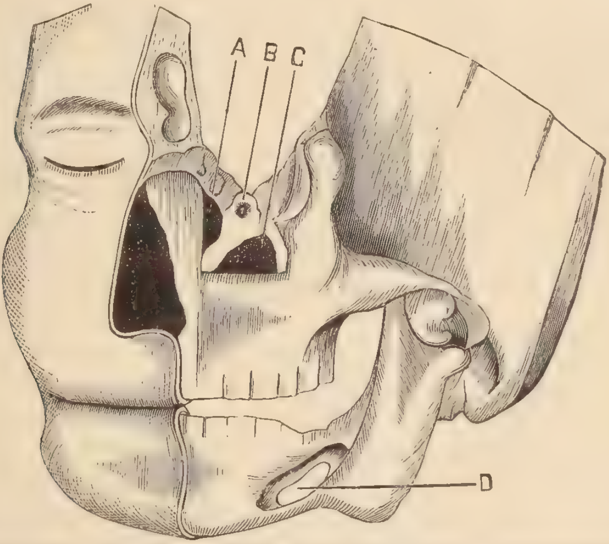
11th.—Magendie's solution, ♏ 200, pot. brom. 75 grs., chlor. hydrat. grs. 40, has been given during the day.

15th.—The patient received to-day Magendie ♏ 290.

27th.—Another large abscess has formed between scapulæ. For the past three weeks the patient has gradually been growing feebler; cornea has begun to ulcerate.

30th.—The patient has been unable to take solid food for twenty days. Brandy and egg-nogg have been given him at short intervals. For the past few days he has groaned almost constantly, and seems to have taken a great dislike to hypodermic injections.

After having passed a quiet night the patient died, at about eight o'clock in the morning, November 30, 1877. In the *post-mortem* examination the nerve could be seen entering the foramen rotundum from the proximal side, and no trace of it upon the distal side of the skull. The foramen was closed, on the interior surface, by bone.



A, Part of Nasal Cavity; *B*, Foramen Rotundum closed by bone; *C*, Opening into Antrum of Highmore; *D*, Where Inferior Maxilla was trephined for Inferior Maxillary Nerve.

This patient made a will, giving his body to me, and the specimen is now in the Wood Museum.

An examination of the intra-cranial portion of the trigeminus, by Dr. Welch, of the Bellevue Hospital Medical College, showed a very slight difference in the diameter of the superior maxillary divisions of the two sides.

That of the left (side of pain) is about three quarter mm. less in diameter than that of the right side.

On tracing the nerve in its course through the pons, the cross-section of the left trunk appeared of a somewhat deeper gray color than that of the right, but the microscopical examination (after hardening in Müller's fluid) showed the nerves well preserved, although there appeared to be a larger number of small nerve-fibers on the left than on the right side, but no other evident change could be demonstrated, in particular no degenerative changes in the nerve-fibers, and no increase of the neuroglia. A microscopical examination of the nucleus of the trigeminus showed the ganglion cells as usually deeply pigmented, but there was no difference between the nuclei of the two sides, and no evidence of disease of central origin.

Obs. IX. Exsect. of infra-orbital nerve nearly to the foramen rotundum. (Nussbaum, of Munich, "Report on Progress of Surgery," 1863–'65, by Dr. Gures, Berlin, translated by Dr. Schuppert in a letter to Dr. Blackman.) A female aged thirty-eight, suffering from traumatic neuralgia, had numerous dissections made of the supra- and infraorbital nerves during a space of five years, before she came under Dr. N.'s treatment.

During the next two years, repeated extirpations of the cicatrices were made, the common carotid tied, the ascending ramus of the lower jaw trephined, and the inferior dental nerve exsected, with mylo-hyoid and lingualis, causing necrosis of the bone, which had to be secured to the articulation. Five months later the neuralgia returned, when the infraorbital nerve was exsected nearly to the foramen rotundum. . . The pain had entirely ceased up to the time of publication, several months after the operation.

These three cases comprise the second class, in which pain was felt at the same time during the second six months, but was relieved by an operation upon adjacent nerves. In the two first, the pain appears in a different part of the face. In the third, innumerable operations fail to bring relief until the high operation is performed upon the superior maxillary nerve.

The first two, so far as the facial neuralgia of the superior maxillary is concerned, were permanently relieved by the exsection of that nerve; no pain, so far as is known, ever after appearing in its tract.

In the third case, the high operation brings relief when all other possible methods, even the ligature of the carotid, had failed to do so. Each of the three is an irrefragable proof of the merits of the high operation, limited to the tract of the superior maxillary for the cure of neuralgia of the face. They are successes as much as the first class, but have been put by themselves to show, 1, that pain appearing in the course of the inferior dental, subsequently to an operation upon the superior maxillary, does not necessarily indicate the operation to be without success.

2. That failure to give relief does not prove anything as to the value of the operation or otherwise, if such a failure can be proved to be due to an error of diagnosis rather than to one of the knife. (Obs. IX.)

3. That a cause producing compression of this nerve in the infra-orbital canal, thus impairing its nutrition, may subsequently to such an effect, or simultaneously with it, appear in the inferior dental canal, and produce a similar effect upon the inferior dental nerve, which is equally favorably situated for compression.

4. Nerves traversing bony canals require no central lesion or a cause acting generally, to account for a neuralgia which attacks them, their anatomical relations to bony parts sufficiently accounting for such pain.

5. That these anatomical relations account for the great frequency of trifacial neuralgia as compared with other obstinate neuralgias.

Obs. X.—Resection of superior maxillary, soon after its exit from foramen rotundum. (Wagner, of Kœnigsberg. Schmidt's "Jahrbucher," B. 146, p. 64.) Upon a woman forty-five years of age, for a neuralgia of twenty-three months' duration, upon whom Von Burow had performed neurectomy of the infra-orbital.

Wagner, suspecting a central cause which medicines failed to remove, determined to operate as near as possible to the site of disease. Thirty hours after the operation the pain disappeared, but returned in three months.

Obs. XI.—Exsection superior maxillary. (Dr. Foote. Operation performed at Cincinnati Hospital, February, 1870. Case unreported.) "Pain returned in three months." (Conner, "American Journal of Medical Sciences," vol. ii., 1870.)

Obs. XII.—Extirpation of superior maxillary nerve and Meckel's ganglion, for facial neuralgia. (Fowler, S. R., "Proceedings of Medical Society of Kings County," 1877, p. 176.)

For the relief of neuralgia of eighteen months' duration. Patient was unable to attend to business, and, discouraged with life, was well nigh the point of desperation. Operation occupied an hour, and was attended with slight hæmorrhage only.

The operation, so far as the relief of the infra-orbital neuralgia was concerned, was a complete success. The patient's general health still continues to improve, but he occasionally complains of pain along the line of the lower jaw and in the lower teeth.

The writer states: "Should this continue I intend to exsect a portion of the inferior dental branch."

Obs. XIII.—Exsection superior maxillary, etc. (Dr. Schuppert, New Orleans.) Case unreported. See private letter to Dr. Conner, loc. cit., p. 371.

"The pain returned, and before I finally succeeded in relieving the sufferer permanently, I performed several other operations, tying the carotid artery and resecting the facial nerve at the foramen styloideum. It is now over one year since I performed the latter operation, and the man has never since been affected with the slightest pain."

These cases comprise the third class. With the exception of Obs. XII., they do not throw much light upon the operation as a justifiable procedure, on account of the meagerness of the clinical facts. Case No. 12 should be considered a success, inasmuch as pain had not returned to the region originally affected, but to that of the lower jaw; and is also another proof of similarity as regards pathological tendencies based upon anatomical resemblances which exist between the superior and inferior maxillary nerves.

Obs. XIV.—Osteoplastic resection of the upper jaw, and removal of the second branch of the trigeminus from a point near the foramen rotundum. (Billroth, "Klin. Wochenschrift," No. 18, p. 196.)

The operation for a short time was followed by the most satisfactory results; but about six weeks (year 1866) after the operation, pain was felt.

Obs. XV.—Neuralgia of the second branch of the trigeminus, resection of the trunk of the superior maxillary nerve at the foramen rotundum, according to the Carnochan method. (Professor Podrazki, Vienna, "Wien. Medicin. Wochenschrift," No. 103, 1869, p. 1710). Upon a man thirty-six years of age, for neuralgia without a known cause, which attacked the patient while washing his face. Resected nerve measured two inches, and was found to be remarkably thick and deeply congested.

Pain left the region of the superior maxillary after the operation, but after a day or so appeared in the supra-trochlear nerve. Careful watching of the patient, together with his own statements, did not leave a doubt as to whether the pain was due to an "irradiation" from the infra-orbital or to an "independent" neuralgia of the frontal.

Eleven days after the first operation, resection of the frontal nerve was made just before it divides into the supra-orbital and supra-trochlear branches.

Fourteen days later the patient, free from pain, was obliged to leave the hospital, and since then nothing has been recorded concerning him.

Obs. XVI.—Section and removal of the superior maxillary nerve and Meckel's ganglion for neuralgia. (Cheever, David W., "Boston Medical Reports," 2d series, Boston City Hospital, 1877, p. 262.) Results of the operation. At first the pain entirely disappeared. It slowly recurred, and patient was obliged to take opium.

Two years after the operation, in reply to a letter addressed to her by Dr. C., who desired to know whether she had been permanently benefited by the operation, she wrote: "Only to destroy the pain in the immediate locality of the operation. On the other cheek, temple, and in both lower jaws, it is as bad as ever."

Obs. XVII.—Removal of superior maxillary nerve, with the ganglion of Meckel, and the inferior maxillary nerve, for persistent facial neuralgia (Wm. H. Mussey, Cincinnati, "Cincinnati Lancet and Observer," August, 1869, vol. xii., p. 449.)

Upon a man thirty-two years of age, who, after exposure to intense cold, began to suffer from neuralgia, confined chiefly to the superior maxilla. For five years the patient resorted to all kinds of medical treatment without obtaining relief. During the operation the ganglion of Meckel and the superior dental nerves were clearly demonstrated and removed. Pain entirely left the superior maxilla, but in the course of the following two months was felt along the inferior dental nerve, and became so severe that an operation for the removal of that nerve was performed. After recovery, the patient writes: "The operation is a complete success."

This case concludes the fourth class, which teaches:

1. That in some cases at least neuralgia may be as isolated as the distribution of a single nerve, while, on the other hand, it may be as general as the distribution of all the nerves of the body.

2. That exsection of the superior maxillary nerve will not cure a neuralgia limited to the inferior maxillary nerve, any more than exsection of the latter will relieve a neuralgia of the former.

3. That it would be as reasonable to banish the deligation of arteries from operative surgery for the treatment of aneurism, because after the cure of a femoral aneurism by the ligature an aneurismal tumor should subsequently develop upon the external iliac artery, as to cast away the section of nerves for neuralgia because the section of some particular nerve, which is followed by relief so far as the cut nerve is concerned, does not relieve the neuralgia of some other nerve.

Obs. XVIII.—Exsect. of trunk of the second branch of the fifth pair of nerves, etc. (Carnochan, N. Y., "Am. Jour. Med. Sciences," new series, vol. xxxv., p. 139.) Upon a man, fifty-four years of age, who had suffered for many years from facial neuralgia.

The nerve exsected measured two inches, and was hyperæmic and thickened. Relief was immediate, and the cure complete. December 8th, about two months after the operation, the following remark is recorded: "Visited the hospital; still free from pain, and in good condition."

Obs. XIX.—Sect. and removal of the sup. max. nerve and Meckel's ganglion for neuralgia. (Dr. Thorndike, Boston, "Boston City Hospital Medical Reports," second series, p. 262.)

Upon a fisherman, suffering from pain confined to the region of the infra-orbital nerve and its distribution. The nerve was traced to near the foramen rotundum and cut off, and with it the spheno-palatine was removed.

The wound healed readily, and one month after the operation the patient was discharged. Up to the date of discharge there had been no return of pain.

Obs. XX.—Exsect. of the trunk of the sec. branch, etc. (Carnochan, *loc. cit.*) Upon a woman who had suffered six years from neuralgia of the face.

The nerve, which was removed for a distance of two inches, was found enlarged, very vascular, thickened, red. Relief was immediate. One month after the operation no relapse had occurred. The sensibility of the face was perfect fourteen months after the operation.

Obs. XXI.—Resect. of the sup. maxillary. (Linhart, of Würtzburg, "Deutsche Klinik.," "Gaz. Hebdomadaire," 1860.) Upon a man forty-three years old, who had suffered from neuralgia for seventeen years.

A resection of the infra-orbital brought immediate relief, but a relapse soon occurred.

A second operation was performed, and an additional inch of the infra-orbital branch removed, and at the same time a resection of the superior maxillary was performed by means of the galvano-cautery. Relief was immediate. Notwithstanding an abundant hæmorrhage, which nearly proved fatal, the patient made a rapid recovery, and at the end of the sixth month after the operation no pain had returned. This case concludes the observations.

Whole number of observations recorded........................	21

The value of this operation, as affording relief to the sufferer, and the dangers involved to the patient, may be seen at a glance by reference to the following table. These cases are all that could be found including the removal of the spheno-palatine ganglion with the nerve trunk. They have been arranged in the order, as far as was possible, of the length of time after the operation that the patient enjoyed immunity from pain.

Many eminent and distinguished surgeons have contended that extirpation of Meckel's ganglion with the superior maxillary branch is not necessary. Foremost among those who entertain this view is Langenbeck, whose vast clinical experience and wide observation entitles his opinion to the highest respect. He believes the disease has in most cases a specific character, and in his judgment medication, with this in view, should in all cases be adopted. The record of his cases substantiates his views, and the operation known as his has met with magnificent results. If the disease is entirely peripheral and specific in its nature, undoubtedly Langenbeck's operation is most satisfactory. A careful study of the experiments of physiologists as to the intricate interlacements and inosculations of nerve plexuses, a *resumé* of which has been given, shows that the ganglion must be removed if the disease is to be radically cured. This opinion receives additional weight in the history of some of the cases reported, where complete and permanent relief was not obtained until the spheno-palatine ganglion was extirpated. In many cases reported, in which the nerve-trunk has been exsected without removal of the ganglion, pain has returned. In many of these cases surgeons have given their opinion that the operation was consequently a failure. There is a significant lesson to be derived from the conclusions of the physiological investigations referred to in the first part of this paper, and if surgeons would adopt the precepts which these experiments establish, this operation would more often be followed by complete success, whereas heretofore it has been condemned from the reasons assigned.

	Operations.	Operation, by whom performed?	Operation performed, upon what nerve.	After operation, how long under observation?	After operation, was pain ever felt? If so, when?	After operation, was pain ever felt? If so, where?	From operations, number of deaths.
	No.	Names.	Nerves.	Months.	Months.	Nerves.	Months.
1st Class, 6.	1	Wood	Sup. Max.	24	..	....	....
	2	Wood	" "	36	..	....	....
	3	Schuppert	" "	24	..	....	....
	4	Carnochan	" "	14	..	....	....
	5	Blackman	" "	16	20	Sup. Max.	....
	6	Wagner	" "	20	..	....	....
2d Class, 3.	7	Wood	Sup Max.	84	..	Inf. Den.	....
	8	Wood	" "	86	..	" "	....
	9	Nussbaum	" "	4 ?	..	....	....
3d Class, 4.	10	Wagner	Sup. Max.	3	3	Sup. Max.	....
	11	Foote	" "	3	3	" "	....
	12	Fowler	" "	5	..	Inf. Den.	....
	13	Schuppert	" "	4 ?	4 ?	Sup. Max	....
4th Class, 4.	14	Billroth	Sup. Max.	2	2	Sup. Max.	....
	15	Podraski	" "	1	..	....	....
	16	Cheever	" "	1	..	Inf. Den.	....
	17	Mussey	" "	2	..	" "	....
5th Class, 4.	18	Carnochan	Sup. Max.	2	..	....	....
	19	Thorndike	" "	1	..	....	....
	20	Carnochan	" "	1	..	....	....
	21	Linhart	" "	6	..	....	....

Number in which pain was increased	0
Number in which not increased	21
Number in which temporary relief was obtained	21
Number in which temporary relief was not obtained	0
Number in which permanent relief was obtained	16
Number in which permanent relief was not obtained	5
Number of deaths due to operation	0

The preceding cases, although too limited to justify broad and comprehensive deductions, prove, nevertheless, the correctness of the following practical conclusions:

1. The high operation upon the superior maxillary nerve for the cure of neuralgia characterized by pain (loci dolentes, *points douleureux*), having its maximum of intensity at the infra-orbital foramen, in the course of the malar branch, and sometimes, although rarely, in the alveolar dental, superior labial, and palatine points, is a better operation than the lower

one, inasmuch as the preceding cases show that the former, as a secondary measure, has cured or brought relief in nearly every case in which the latter has failed to do so.

2. The operation is justifiable, as the record shows no case in which death has occurred as an effect of the operation, nor one in which the symptoms have been aggravated.

3. Relief, if only temporary, is a result which justifies the high operation for neuralgia as much as it does the one for the removal of malignant tumors, which, as a rule, invariably recur subsequently to their extirpation by the knife.

4. Want of success is due to failure as regards a correct diagnosis, not only of the cause of the pain, but also to failure as regards the site of the disease. If central, the diagnosis fails to determine whether the centers are primarily or secondarily involved, or, if peripheral, whether the recurrent fibers are or are not implicated.

5. Failure will be the rule rather than the exception, unless care is taken to distinguish those cases in which neuralgia is due to central lesions from those in which the cause lies in the periphery.

6. If the lesion is situated in the terminal nerve plexuses, polyneurotomy, or the resection of several nerves, will be more likely to remove pain than mononeurotomy, or the resection of a single nerve.

7. Mononeurotomy should be reserved for those cases in which the irritant involves the trunk of a nerve near its origin.

8. The prognosis will be the most favorable where lesions involving the plexuses or the nerve centers can be excluded.

9. The principal indication for the employment of this bold but safe operation is found in the obstinacy and persistence of pain, notwithstanding the trial of all milder measures.

Finally, when the case is a desperate one, and as a *dernier ressort*, every conscientious and skillful surgeon should not fail to make trial of an operation which facts prove to be as good in theory as it is successful in practice.

In conclusion, it may be said that resection of the superior maxillary nerve, together with Meckel's ganglion, for the alleviation, and in most cases the cure, of one of the most dreadful and formidable diseases to which human flesh is heir, is one of the greatest triumphs of surgery. A careful analysis of the table will show that the two cases belonging to Wood and one to Schuppert remained free from pain at least two years; and the interesting and unique autopsy held in the case of Mike Doyle, one of the severest cases on record, has thrown much light upon the subject of accuracy in diagnosis, upon the pathological changes involved, and upon a right estimate of the untold value of this most daring operation. It is also a most significant fact that out of the twenty-one cases that have been collected from all the literature upon this subject, more than half have been performed by American surgeons. It is certainly an operation of which American surgery can justly be proud; and if the success which has attended these twenty-one cases will only induce surgeons to investigate impartially the merits of this operation, it will inaugurate a new era and establish a reform in the surgical treatment of this most desperate malady.

ART. III.—*The Drift into Solidism.* BY J. R. BLACK, M. D., Newark, O.

IN the realm of medicine, discoveries here and inventions there have often given for a time an all-prevailing direction and force to the currents of medical opinion. The discovery of the circulation of the blood led to many attempts to explain function and disease on purely mechanical principles, and the rise of chemical knowledge to the pathological doctrines of Sylvius and Willis. The reaction from the extreme views of the chemical school led to the "animism" of Stahl and the "irritability" of Cullen, but no sooner was the anatomy and function of the ganglionic or sympathetic system of nerves prominently presented, than through its instrumentality was sought the solution of many a morbid problem.

While the influence of a single dominant idea or doctrine has thus often served to give direction to the tide of opinion and investigation, far greater is the influence when one or more discoveries, some new and popular doctrines and inventions, are conjoined to carry thought and investigation into some special channel. Such we think is true of the great tidal tendency of thought to-day. It is easy to discern the extremes to which the fashionable scientific thinking carried the schools of medicine in the past, but not at all so when the observer constitutes one, and moves with the throng. His line of vision is then short and confused, and is apt to be infected with the enthusiasm of the mass.

The cell doctrine of Virchow, the great impetus given to histological research by the improvement of the microscope, and the universal acceptance of the doctrine of the correlation and conservation of the forces, have contributed, all together, in giving a preponderant, and therefore a one-sided, direction to medical investigation ; and this, too, in spite of the liberalizing tendency of our day, which fosters a much broader culture than the dogmatic spirit of the middle age schools.

The great increase of knowledge in the two last decades in regard to the minute structural basis of physiological and pathological action, the close study of the intimate relation of the phases of force with the phases of form—one being apparently indissolubly linked with the other—coupled with the fact that vital energy is only evolved through retrograde metamorphosis, have led to the tacit assumption that variety of structure is tantamount in its fullest sense to variety of force, and that an abnormal modification of function necessarily implies an abnormal modification of structure. While it is freely granted that organic forms have, so far as can be known, an essential relation to their forces, as freely is it claimed that structure is little more than the rough yet necessary framework through which the vital forces act and are evolved. Structure may be compared in an elementary way to the substantial arrangements of a galvanic battery. Without an appropriate enveloping liquid a large evolvement of the electric force is not possible, and the amount and intensity largely depends upon an appropriate interaction of the solids with the liquids. Just so is it with the structure and liquids of the body, only the processes are far more numerous, delicate, and complicated.

As we will endeavor soon to show, the transmutation or the immediate extrication of the vital energies takes rise as an immediate effect of the interaction of the blood and the tissues, quite as much in the living organism as in the inanimate machine, and not according to the method which seems to be practically accepted as true, that blood is only to build up muscle, nerve, and gland tissue, from which special varieties of force are afterward evoked through the process of waste or retrograde metamorphosis.

This roundabout method in the evolution of physiological and pathological energy seems to be the only one now-a-days kept in view, and has apparently received its chief coloring and support from the great doctrine of the conservation and correlation of energy. A lump of coal, for instance, is only stored up solar light and heat; in giving the lump form, light and heat were taken from the sun, and these are given up again when it is resolved into its primitive elements; or, in other words, the former process is constructive, the analogue of tissue-building by the blood, and the latter retrograde metamorphosis, the analogue of tissue-waste through the spending of energy. Now, it is apparently assumed by all late writers on the pathology of disease that the giving out of vital energy in the human body depends upon a like process, and that a morbid modification of this energy must therefore have as its basis some structural alteration or imperfection. For example, Nothnagel, in writing on epilepsy, says that it "must have, as a foundation, anatomical changes in some portions of the nervous system;" * and Jolly (*loc. cit.*), on hysteria, says: "That some alterations in the nature of the nervous system must be at the foundation of its altered functions can not be doubted."

Certainly if the vital forces are only evoked through the roundabout process of tissue waste, if the tissue be structurally imperfect or disordered, that it should cause a derangement of the energy is sufficiently logical; and, if disease in its widest sense arises only thus, the doctrine is nothing more nor less than pure solidism on a new or modern basis.

If the conditions which engender normal phases of vital action be attentively considered, they will lead to the conclusion that energy can not arise exclusively from the mere waste of tissue, but quite as much, if not far more, by a direct waste or metamorphosis of the matters in the blood. The solidist view virtually assumes that the force lodged in nutritive material must be converted into tissue before it can be made available as spending energy; that tissue energy is not simply stored energy, but also the only direct source from which the activities, such as motion, sensation, and thought, are drawn. The derivation of morbid energy, like the physiological, is not so boldly stated by recent writers upon the pathogenesis of disease; but such is the postulate that writers present on almost every hand to their readers. They do not hesitate to express the positive conviction that morbid modifications of energy, entitled, if any are, to the designation functional, must have some structural lesion as their basis—this too in the face of the fact that the most careful histological scrutiny has failed in showing any such changes, either as a uniform concomitant or antecedent. The supposition that the fault may lie in the direct subtile interaction of the blood and the tissues, whereby normal as well as abnormal force is immediately evolved, is not even mooted, but light is sought for only in the grosser morphological changes.

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* Ziemssen's "Cyclopædia of Practical Medicine," vol. xiv., p. 261.

If the organism be attentively considered as a whole, the truism that the manifestations of the special phases of life-force are the products of two leading and gross factors, obtrudes itself upon the consciousness. These are the blood and the tissues. Comparatively simple as each tissue is, in the aggregate the structures are equal in chemical complexity to the blood. The one without the other is as dead matter. Cut off the contact of blood from any particular tissue, and the evolution of its special phase of force ceases at once, and with a rapidity that has a relevancy to its complexity; reëstablish the catalysis, and function is as quickly restored. But it is only specific elements of the blood that extricate energy when brought in contact with special tissues: this is apparent in that there is an elective affinity between certain molecules of the blood-current and particular tissues, for the evolution of energy, quite as much as there is for mere structural aggregation. At the least, there is the same evidence of one that there is of the other. The point, however, admits of experimental verification. Inject morphia into the blood, and the elective affinity of its molecular energy is for the sensory apparatus; inject strychnia, and it is for the motory tract; inject apomorphia, and the elective affinity of its energy is for the stomach. When the elective affinities of the components of the blood for the tissues are coördinated, the extrication of energy is normal; if some of those in the blood are inadequate, the extrication in the affiliated tissue is weak or abnormal, or, in other words, functional derangement is manifest.

The energy of the physiological functions varies from day to day, and even from hour to hour, not so much or mainly from primary variations of the solids, but from those of the far more mobile and ever-changing blood-current. Even the transmuted energy of an infinitesimal amount of nicotine by the millions of cells in the sensorium, soothes and tranquillizes almost instantly for one hour, but is of no effect the next. Just so is it with many functional diseases. They are now better, then worse; severe one day, and inappreciable the next. It is incredible that solid structure should be so evanescent as to account for this, but very credible that the ever-changing and rapidly moving blood-current, which bears transmutable energy for good or for ill in its every particle, should be the *fons et origo* of such mutations.

In order to present the subject somewhat more in detail, let us consider some of the evidences which militate against the correctness of the doctrine that the evolution of physiological force comes only through the metamorphosis of tissue.

When a person is much weakened by some sudden hindrance to the elaboration of blood, begetting, in short, blood inanition, if a suitable pabulum be injected into its current, an almost instantaneous revival of all the vital functions immediately occurs, and long before the conversion of such nutritive material into tissue could possibly take place.

If the strength, say of voluntary motion and of mentality, be the outcome only of muscular and nerve disintegration respectively, how happens it that a glass of wine will, under appropriate conditions, almost instantly revive the drooping power of both for hours? Even if alcohol be allowed to serve as a food, surely its conversion into available tissue within twenty minutes can scarcely be supposed.

If motion by muscular contraction be the outcome solely of tissue disintegration, then in cases of starvation the waste of muscle ought not only to be relatively far greater than it is, but it ought to show a definite relation to the excretion of urea; or, as Dr. Haughton puts it, "we might then assume the waste of an organ as the measure of its work," an assumption that cannot be verified. Says Brücke, "we destroy only a relatively small part of our bodies, the greatest part of the substances which we consume to generate heat and force are elements of the food which we appropriate, . . . and that it is a matter of experience that we use up our food in a short way, so to speak, in that the products of respiration and renal secretion are changed in a comparatively short time, according to the character of the food." *

If physiological energy arises from another source besides the mere integration and disintegration of tissue, or also from a direct interaction between the tissues and the blood, whereby the potential energy of the latter is rendered immediately not mediately available for the processes of life, then a like relation between the blood and the tissues may be presumed to appertain to some of the phases of morbid energy. That this may be received as true is in part apparent from the physiological action of some medicinal or toxic agents. The direct and complex effects upon the nervous force of atropia, opium, aconite, strychnia, nicotine, hydrocyanic acid, alcohol, and chloroform, are wholly inexplicable on the theory either of simple building up or tearing down of tissue. The effects are far too immediate for that. They give rise, when brought in contact with the nervous centers, to certain abnormal developments almost instantaneously, and in quantities sufficient to cause speedy death. It is incredible that a drop or two of prussic acid can bring about death almost in the twinkling of an eye through tissue metamorphosis; or that, if this occurs with such violence as to occasion death, that no evidence of

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* "Voresungen Uber Physiologie."

tissue change, even by the highest magnifying power, is perceptible.

If alcohol be judiciously administered when the energies are flagging, they will be revived, and this notwithstanding the well known fact that it retards tissue metamorphosis—precisely the contrary of the condition upon which the extrication of spending energy is alleged to depend.

Brown-Séquard states that "when the spinal cord of a frog has been washed of every drop of blood, when injections have been made of pure water so as to carry away every particle of blood, if strychnia is put upon the spinal cord, in a very short time the amount of reflex power, which is a manifestation of nerve force, is very much greater than it was before, showing that strychnia has increased that power." *

The assumption that this increment of power arises from a building up of nerve tissue will scarcely be made, nor will it be claimed that strychnia acts as a nerve tonic by promoting nervous waste or retrograde metamorphosis. The only rational explanation in the case is, that the increase of power arises as the effect of a transmutation of the energy locked up in strychnia into that appertaining to nervous structure. Alcohol may be supposed to invigorate in the same manner, by the direct appropriation of its energy, not of its substance, by nerve tissue, which for a time renders, through substitution, the usual waste of the molecules of the blood or of the nerve cells unnecessary. Hence the evidences of diminished waste through the excretions, with a rise of systemic power. But it is not, as all normal foods are, capable of building up energy; it does not furnish force through organized pabulum, like the molecules of the blood; its energy is at once transmuted by contact with the nerve cells; hence the abnormality of its influence and the suddenness and brevity of its action. Alcohol strengthens, but it does not nourish; it furnishes, under appropriate conditions, like heat, to vegetable organisms energy but not food. All this harmonizes with its therapeutical utility, and narrows the long and bitter controversy as to whether alcohol is a food or not down to what is meant by

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* First Lecture, Boston, Mass., March, 1874.

food. If by food is meant whatever under appropriate conditions acts as an energizer to the vital functions, then not only alcohol but nearly all the medicines classed as stimulants and tonics are entitled to that appellation ; but if it is to mean *substances transformed or capable of conversion into a specific organic molecular type*, then alcohol is clearly not entitled to the designation of a food any more than is quinine.

The fact that the potential energy of many toxic agents becomes immediately actual when brought into contact with certain tissues, and not mediately through tissue integration or disintegration, appositely supplements the facts already cited, that some, if not the larger share, of the potential energy of the blood is immediately available as functional or spending energy. And, if thus available for the normal phases of functional activity, it must also be for the abnormal. Yet this is a consideration wholly ignored in the rage for seeking the genetic conditions of disease only in the gross or solid structures of the body. Inject hypodermically a solution of morphia, of atropia, of nicotine, of aconite, etc., etc., into the areolar tissue, and no sooner does the one or the other reach the brain than its sensory and motory functions are strikingly and specifically affected. To account for all the specialized effects on the simple mechanical principle of a modification of brain anæmia or hyperæmia, or of integration or disintegration, is as superficial as it is unphilosophical. A single homologous modification is made to account for half of a dozen diverse effects, precisely as the abstraction " irritability " is made to account for hysteria, epilepsy, convulsions, chorea, migraine, and tetanus. Recent progress in collateral departments of science teaches us that it is the specific kind of energy in each medicament, acting directly upon, or transmuted by contact with, the nervous cells, that gives rise to their modifications of function or of energy. Now the same thing is doubtless true of some morbid phases of vital force. Take for example chorea. Nothing is more common than for the symptoms to be much aggravated for one or two days and then better for two or three more. To account for this on the mechanical principle of a variation of blood pressure, or by supposing a change in the activity of the process of tearing down or building up of tissue, is at least gross and tangible, but nothing more. To account for it by supposing a varying condition of the molecular energy of the blood, acting upon or directly transmuted by contact with a weak or imperfectly developed center of power, is to say the least far more plausible, and in accordance with many phenomena of a like nature.

It is a familiar fact that true epilepsy (acute) often occurs in children solely through the influence of febrile blood acting upon a very susceptible nervous center ; that the acute epilepsy or eclampsia of pregnancy also arises in some instances from an abnormal energy of the same medium ; that alcoholic intoxication frequently produces epileptic attacks in a like manner. Now, may it not be, in those subject to somewhat regular recurring seizures of the disease, that some slow-gathering abnormity of the blood produces the spasmodic explosion, precisely as a more sudden access of heat, or of urea, or of alcohol, may produce it? At least, the point is worthy of examination, inasmuch as the eager search for some pathognomonic lesion of the nervous structure has been fruitless.

Even the classification of therapeutical agents has of late been adjusted to the basis of solidism, or that of the mere process of building up or tearing down of structure. But an exception has been made of the action of some agents upon nervous tissue, which are termed "modifiers." Now, the necessity for this exception has obviously arisen from the fact that we are far better able to discern, through consciousness, the more delicate phases in function of the nerves than of any other tissue, and hence also the variation of action to which the potential energy of this or that substance immediately gives rise. These are far too numerous, varied, and complex to be accounted for by the hypothesis of a mere tearing down and building up process.

Finally, and in conclusion, if the dullness of our perceptions makes us fail in detecting the more delicate phases of modification to which medicinal substances give rise in all the tissues save the nervous, surely this affords us no warrant to assume that such medicaments are simply and only retarders or promoters of their metamorphosis.

Clinical Lecture,

By Professor T. Gaillard Thomas, M. D. Reported by P. Brynberg Porter, M. D.

LONG CONICAL CERVIX: SECOND STAGE OF PROLAPSUS UTERI.

Gentlemen: The first patient whom I show you to-day is Mrs. Lucy N., twenty-eight years of age, and a native of Ireland. She has been married fourteen months, and has never been pregnant. Let us see if we can get a history of her symptoms from herself.

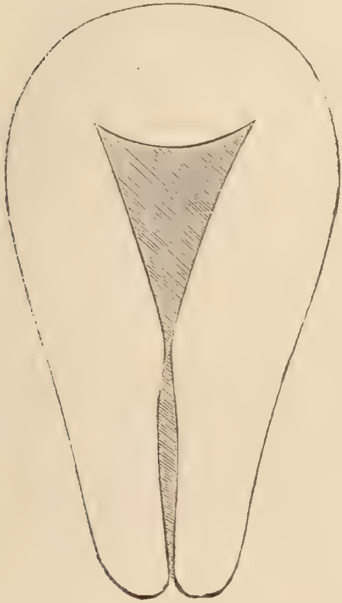
What do you complain of? "Pain in the back and side." Where do you feel the pain in the side? "As high up as the waist." Is that all that troubles you? "Yes, except an irritation in the throat." Do you have the whites at all? "Not a great deal." Do you suffer much pain at the time you are unwell? "I always have a great deal of pain then." Do you feel this pain during the flow? "Yes." Is it ever so bad that you have to go to bed on account of it? "Yes, sometimes." How long do you have to remain in bed at such times? "Usually a day or two." Did you have this same trouble at your periods before your marriage, or has it come on since? "I always suffered much the same, though I think it is rather worse now." Do you ever have any trouble in standing or walking? "No."

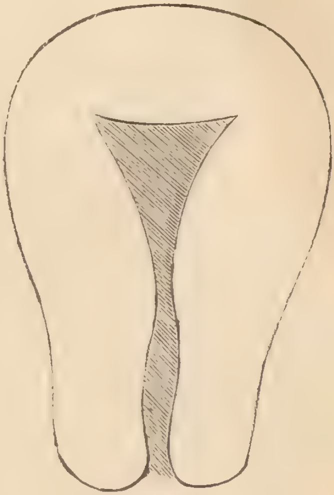
There are only two or three symptoms of any real value here, and they are, the sterility (which, you remember, has now lasted for fourteen months), the dysmenorrhœa (which existed before the patient's marriage), and, possibly, the backache. As to the pain in the side, of which mention has been made, she places her hand over the region of the spleen in describing its location, which brings it too high up to be due to any trouble about the pelvic organs. I proposed an examination for the purpose of finding out, first, why the woman has never been pregnant, and, secondly, why she suffers so much at her monthly periods, and will now tell you what was the result of it.

On introducing my finger into the vagina, I at once detected the cervix coming very low down. In addition, I ascertained that it was very small and very conical in shape. Stretching beyond it, in a backward direction, I could feel a long ridge, which might either be the uterus itself or some growth or deposit beneath it, of very symmetrical outline. In order to settle the question, I resorted to conjoined manipulation, which proved exceptionally easy in this patient, and discovered beyond the possibility of doubt that it was the body of the uterus which had thus fallen down out of its normal position. Finally, I passed my finger completely around the cervix, and then the whole case was clear before my mind. After some little experience in the practical study of gynæcology, one gets accustomed to seizing upon a few salient points in a case, and at once determining its real character with considerable precision. You know how eminent naturalists like Agassiz have been able to give the description of an entire animal simply from one of its teeth, or some small bone belonging to it, which has been presented to them, on account of their accurate knowledge of genera and species; so that afterward, when the remains of the particular animal to which the part belonged have been discovered, it has been found to correspond exactly in every particular with the one whose construction had been described. The greater the number of parts belonging to a certain animal that can be brought together, the more easy it is for the naturalist to pronounce upon its classification; and so here, with the symptoms and physical signs both before us, it is not a difficult matter to classify a case like this. The uterus has fallen down out of its normal position, the fundus gravitating toward the hollow of the sacrum, and that there is an unusual pouch in the wall of the vagina behind the cervix. The position of the patient being then changed, I inserted the probe, and easily passed it to the fundus, ascertaining by this means that this nulliparous uterus measured fully three inches. When I endeavored to pass the uterine sound, however, I experienced considerable difficulty; whence I concluded that the cervical canal was of abnormally small caliber.

Now let us give the case a thorough investigation. "To begin at the beginning," the patient has what is known as a long conical cervix; in the second place, some influence (whether the unusual weight of the organ on account of having such a long cervix, or something else, I am unable to make out) has caused the uterus to descend in the pelvis until it has reached the second stage of prolapse. In the first degree of prolapsus uteri the organ merely descends, its axis remaining unchanged; in the second, its axis is decidedly altered, the fundus falling toward the sacrum; and in the third, it has descended so far that either a part or the whole of it is quite outside of the body. The retroversion found here is not true retroversion, but only that degree of this condition which ordinarily accompanies the second degree of prolapsus. We next inquire, Why has this woman suffered so much at the time of her menstrual periods? This is due to the contraction of the cervical canal, which is almost always found with the long conical cervix. The menstrual blood, being able to escape but very slowly on this account, becomes dammed up in the uterus, and frequently coagulates. The organ is excited by the presence of the blood to efforts like those accompanying a miscarriage, and finally succeeds in expelling a number of small clots. Then follows a period of repose, during which the patient is more or less free from pain; and after that the same process is repeated, the patient again suffering the most severe spasmodic pains.

This, then, is a case of obstructive dysmenorrhœa. The obstruction is not complete, but it is sufficient to interfere very seriously with the escape of the menstrual blood from the uterine cavity. If the blood remained in the fluid state, I think there would be no pain here. On questioning the patient particularly upon this point, however, she states that she does not pass any clots during her sickness. Nevertheless, she is very clear in regard to the fact that she has the most severe bearing-down pains for the first day or two of the menstrual period. This is to be classified, therefore, as obstructive dysmenorrhœa, due to congenital contraction of the cervical canal. You will see in Barnes's and Sims's works (as well as in my own book, copied from them) figures illustrating the appearance of the long conical cervix; but I think you will be able to judge of the difference between that and the normal cervix quite as well from the simple diagrams which I now sketch for you on the blackboard.





I dwell on this subject of long conical cervix for the reason that I want you to recognize it as a source of no little trouble, and classify it accordingly when you meet with it. If I had not heard any of the symptoms in this case before I made a vaginal examination, I should have been almost positive that the patient suffered from dysmenorrhœa when I found this unfortunate malformation present. Such a cervix is usually found to be very sensitive, on account of the irritation produced, both by often repeated congestion and by sexual intercourse when the patient is married. In the present instance there is, as we have seen, a distinct pouch in the vaginal wall behind the cervix; and I have no doubt that this has been caused by the male organ, which is forced into this unnatural position by the peculiar shape and length of the cervix.

The sterility would seem to be due to the length and conical form of the cervix, the malposition of the latter, and the pouch in the posterior wall of the vagina which receives the male organ. It will be seen, however, that the last two of these causes are probably directly dependent upon the malformation of the cervix; so that the sterility is in reality entirely occasioned by this one trouble.

Now as to the backache. The utero-sacral ligaments are practically by far the most important ligaments connected with the uterus, and these are directly dragged upon when the organ descends in the pelvis, as this one has done. Therefore, the nerve-filaments in these ligaments being kept all the time upon the stretch, it is not to be wondered at that the patient suffers from a continual pain in the back. What has now been said covers, I believe, the whole case, so far as its symptoms, diagnosis, and pathology are concerned.

The next point to be considered is the prognosis, and this naturally resolves itself into two questions: 1. Can we cure the dysmenorrhœa? and 2, Can we put an end to the sterility? In reply to them it may be stated that it is highly probable that both these desirable results can be accomplished; but it is by no means *certain* that this will be the case.

The treatment should be somewhat as follows: For three or four months (and this is a matter of great importance) the patient should abstain altogether from sexual intercourse. Her consent having been gained to this arrangement, the uterus should be put up into its normal position, and then retained there by means of a pessary. This will have the effect of relaxing the utero-sacral ligaments, and allowing them to regain their normal state of tension. By the same means the broad ligaments would also be relaxed, and therefore the venous congestion, which is kept up in great measure by the present strain upon them, would be relieved. This would, no doubt, put an end to all the backache; but the dysmenorrhœa would still remain. If it is due to the cause which has been stated, nothing in the world will relieve it but opening the cervical canal sufficiently to allow of the free escape of the menstrual blood.

There are several ways of accomplishing this result. The first is to overcome the contraction, like a stricture of the urethra, by gradual dilatation by means of graduated sounds.

For this purpose a set of urethral instruments will answer very well, though those designed expressly for the purpose are usually made of hard rubber. Mackintosh, of Edinburgh, was the first to practice this dilatation of the cervical canal, and his article in regard to the procedure, published about fifty years ago, was really the first in modern times to call attention to the subject of obstructive dysmenorrhœa. Yet it was well known to Hippocrates, and he really employed some of the means for its relief which are used at the present day. Another method is the use of tents for the same purpose, and those commonly employed are made of sponge, sea-tangle, or gentian-root. These may be left in position for a number of hours at a time, and they sometimes have the effect of curing sterility, as well as relieving the cervical contraction. There are two important objections to their use. One is that it takes such a long time to effect a cure in this manner, and the other is that they occasionally give rise to pelvic cellulitis and peritonitis. When such an unfortunate result occurs, of course the patient receives far more injury than benefit from their use.

Two other methods remain to be spoken of. The first is, to carry a bistoury up as far as the os internum, and make incisions on one, two, or three sides of the canal according to circumstances, but only through the superficial fibers of the tissues. You will understand that the cervix is not cut through, and, as a general rule, the incisions are only about one eighth of an inch deep, though in some cases it may be necessary to make them somewhat deeper. After that, dilatation is to be practiced. Suppose, however, that you should fail even by this means. There then remains the operation of deep lateral incisions, which has been put at our disposal by Sir James Simpson, and performed a vast number of times by him. He devised an instrument called the uterotome, and with it the cervix is to be cut through on both sides; after which the cut surfaces are to be kept open by means of cotton or other packing. This operation was modified by Marion Sims, who substituted scissors for the uterotome, and whose method has usually been employed in this country.

But all these various plans of treatment, you will observe, are designed for the accomplishment of a single purpose, viz., the opening of the cervical canal. If permanent extension of its caliber can in any of these ways be accomplished, the sterility will in all probability be cured. If conception could once take place, I am confident that the condition of the patient would be greatly improved in every way; but it is quite certain that this will not occur as long as the cervix remains in its present state.

In conclusion, permit me to make one remark in regard to the operation of cutting through the cervix. The danger pertaining to it is not great; but, at the same time, deaths have occasionally been known to result from it. Now it is a great deal worse to have one death in a hundred such cases than it is to have a mortality of fifty per cent. in ovariotomy, for instance; for the reason that a narrow cervical canal has not the slightest effect in shortening life, and many women with this condition get along with comparative comfort all through the period of menstrual activity; while ovarian cyst, if left to itself, is a markedly fatal affection.

Supposed Pregnancy.—Mrs. Theresa R., a native of Ireland, thirty-two years old. She has been married five and a half years, and her last child was born two years ago. How long have you been complaining? "Three months." In what way do you suffer? "I am sick at my stomach in the mornings." Do you have your monthly sickness regularly? "I have not seen anything for three months." What do you suppose is the cause of this stoppage? "I do not know; but I thought I was pregnant." Do you not think so now? "I can hardly tell. That is what I want to find out." Do you have any trouble besides the nausea in the morning? "I have the whites, and I have some backache." Did you have your sickness regularly up to three months ago? "I had a great flooding the last time it was on me." Was it so bad that you had to go to bed? "Yes, I had to stay in bed for ten days." What do you suppose it was? "I thought it was a miscarriage." Did you have a physician to attend you at that time? "No, sir." And you have lost no blood whatever during the last three months? "None at all." Did your sickness ever stop before when you were not in the family way? "Yes, it stopped once for eight months." When was that? "Last summer when I was here at the College." Were you nursing your child during that time? "I nursed it for three months of the time; but after that I did not."

When the patient came to the clinic last summer, as she has mentioned, it was ascertained that she was not pregnant, and she was treated for amenorrhœa. Five months after the cessation of lactation the menses reappeared, and since then have continued regularly up to three months ago, at which time she had a very profuse flow, and since which, as you have heard, they have been entirely absent. She has an idea that she is pregnant again, but, as there seems to be some doubt about the matter, she comes to us to-day for the purpose of finding out definitely whether she really is so or not.

She complains of only three symptoms (besides the amenorrhœa), viz.: nausea in the morning, leucorrhœa, and backache, and they are signs of pregnancy, though, of course, frequently due to other causes. Before my arrival at the College to-day my clinical assistants had made an examination in this case, and found on conjoined manipulation that the uterus was larger than the normal organ, and that the cervix was quite soft. There was nothing special about the appearance of the vagina to attract attention, and on the whole they were unable to make up their minds whether the woman was pregnant or not. Accordingly they left the matter to me to decide; but, I am free to confess, I was utterly unable to do so. Why? some one may ask. That is not the point just now. The point which I here wish to particularly impress upon you is one which, if you will heed, will prevent you from constantly getting into trouble in regard to this matter of early pregnancy. If, after a careful examination in any particular case, you find the symptoms are such that you are thoroughly convinced in your own mind, say so; but if, on the other hand, you find it impossible to arrive at any such definite conclusion, your answer to the patient or her friends should always be in the words of this formula—"I do not know." Not a fortnight passes in which I am not consulted in some such case as this, and in the great majority of them I am able to arrive at a positive decision. But in regard to the others, I can only make use of the above formula. Then the patient is very apt to say, "I thought doctors could always tell." That is a very prevalent opinion in the community, but it is a decidedly erroneous one.

Sometimes the difficulties in the way of the physician are insuperable. In the case before us, if the patient had come to me having missed only one monthly period, I should undoubtedly have said that she was pregnant. But the uterus, though somewhat enlarged, is not nearly large enough for one containing a three months' fœtus. If the woman is pregnant, she ought, in the natural order of things, to have become so after the profuse discharge which she tells us she had three months ago. It is, of course, possible that conception may have taken place at some period later than that; but if that has been the case, menstruation did not coincide with ovulation, as it ordinarily does. As militating against the idea of pregnancy, I may mention that there are no mammary signs whatever. Still, as I said, there is room for doubt, and I certainly should not think of giving any remedies for the relief of amenorrhœa for the present, at all events.

Even in cases which are supposed to be much farther advanced in utero-gestation than this patient, it is often impossible to form a positive opinion; and although it may be rather mortifying to confess that you are unable to come to a decision in a case upon which perhaps half a dozen other physicians have expressed positive opinions, it is always safest to observe the rule which I have recommended to you. If, however, you have been able to arrive in your own mind at a definite decision, either that the patient is or is not pregnant, there is no reason why you should not give a positive opinion like the rest of the medical men. You are aware that formerly, when a woman who was supposed to be pregnant was condemned to be executed for some crime, the question was decided by what was known as a "Jury of Matrons." This was, of course, a very ridiculous body to which to entrust such a matter; but if they decided that the condemned criminal was pregnant, the execution was postponed until after the period when the child would be born in the ordinary course of nature. In this way it was hoped to prevent the destruction of two lives instead of one. At present the matter is always decided by experts, and even by them the most ludicrous mistakes are often made.

If the patient before us were in such an unfortunate predicament, and I were called upon to express an opinion in the case, I should most certainly give her the benefit of the doubt. Many of you, no doubt, remember reading of the celebrated case which occurred a number of years ago, in which a maid of honor to one of the reigning sovereigns of Europe was accused of being *enceinte.* She remained under this unfortunate imputation up to the date of her death, which occurred before the time for the delivery of the supposed child; when the autopsy revealed the fact that she had been suffering from a large ovarian tumor. The best diagnosticians will make a blunder now and then, and it is impossible that the perceptions of even the most experienced observer should at all times be equally keen. Not once but several times has the trocar been passed into a pregnant uterus under the impression that it was an ovarian cyst.

But what do I propose to do? it may be asked. To wait a month, and then examine the patient again. I shall bear the particulars of the case carefully in mind, and if I find by that time that the uterus is no larger than it is at present, it will be perfectly safe to commence the use of emmenagogues.

Subinvolution of the Vagina: Cystocele: Pregnancy.—Mrs. Mary W., aged twenty-four, a native of the United States. She has been married five years, and has had three children, but no miscarriages. The child was born seven months ago. How long have you been sick? "Four or five years." Do you mean to say that you have been complaining during the whole of that time? "Not all the time, but on and off." What is it that has troubled you? "I have noticed that something seemed to be slipping down in me, and last April it came out of the body." And you now come here to find out what that is? "Yes, sir." Do you suffer any pain? "I have a backache, and also dizziness and weakness." Have you been nursing your last child? "I did for two months." And then your sickness came back again? "Yes." Do you still continue to have it regularly? "No, it stopped again two months ago." Have you had no flow at all since then? "Sometimes I have had just enough to stain the linen a little." Have you thought that you were in the family way? "Not until lately." What makes you think so now? "I have noticed that the veins of my leg are enlarged." (This is a varicose condition of the veins.) Do you always have it when you are pregnant? "Yes, sir."

The fact just mentioned seems to be the only thing that leads the patient to suppose that she is again pregnant. As she has borne a child so recently (seven months ago, you will remember), she is naturally anxious not to have another quite so soon. When I have made known to you the results of the examination in this case, you will see why I have had this woman come in just after the one who was last before you. What the patient has noticed coming down outside of the body is a cystocele; the anterior wall of the vagina forming a distinct pouch, the lower part of which projects at the vulva. The perinæum has not been torn, but has become so weakened as to have almost entirely disappeared. There is a slight laceration of the cervix, and an examination by means of the speculum shows that this is the source of the little hæmorrhage which has been noted from time to time.

The most important question in connection with the case is, Is the woman pregnant? Here I should be entirely willing to go before a Court of Justice and make a diagnosis. The uterus is enlarged to the size of one containing a two-months' fœtus, the vagina is of a marked violet tint, the mammary signs are unmistakable, and the varicose condition of the veins of the leg is a valuable corroborative symptom.

What has caused the cystocele? After one of the patient's pregnancies, involution did not take place in the vagina, and in consequence it has remained, ever since, a large and flaccid canal. The pressure of the rectum seems to have had but a slight effect upon the posterior wall, but the anterior wall has been forced down in a very marked manner by the weight of the bladder. Such a condition of affairs not only allows the uterus to descend, but has the direct effect of pulling it down. It is true that there is not prolapse of the uterus as yet; but if the case is not interfered with, this is only a question of time. The backache of which the patient has complained is no doubt due to the stretching of the uterine ligaments which is already taking place.

As to treatment, the patient should be kept perfectly quiet until the beginning of the fifth month of utero-gestation. All weight from above should be removed from the uterus, and everything done to keep it up in position. When two months have passed (the woman having already been pregnant for two months), it will be impossible for the uterus to get down, and such strict care need not be observed. But when the time of her confinement comes, she should, by all means, remain in bed for at least a month. I have not the slightest idea that she will do this; but I am only telling you how the case *ought* to be managed. As a rule, parturient women are not kept in bed nearly as long in this country as in Europe; but an eminent authority in this country is now teaching that there is no necessity for even as much as the ordinary nine days' confinement to bed. I am confident that this is a step backward, instead of forward. In many instances the conventional nine days is quite too short, and in a case like this it is utterly inadequate.

If the patient thus remains at rest for a month, it is possible that involution of the vagina, which before failed to take place, may this time occur. If it does not, the vagina should be narrowed to its natural size by means of a plastic operation. Should the patient, however, feel averse to having this performed, or if the opportunity were not afforded her for having it done, a pessary for prolapsus uteri would probably answer very well by supplementing the natural uterine supports. But, you say, the uterus is not prolapsed. That is true, but it is evident that if you keep up the uterus you also keep up the bladder and vagina.

Clinical Records from Private and Hospital Practice.

I.—*Septic Peritonitis; Removal of Adeno-cystic Tumor of Ovary by Laparotomy; Death.* By Charles C. Lee, M. D., Surgeon to the Charity Hospital, to the New York State Woman's Hospital, etc.

As an offset to the cases of ovariotomy published by Dr. James B. Hunter in the last number of this journal, the following interesting and somewhat exceptional case is offered to its readers:

M. H., aged thirty, married, was admitted to my service in the Woman's Hospital, April 12, 1879. She had been married six years, and her first and only child was still-born, at full term, five years ago. After her confinement she noticed that the abdomen remained as large as ever, and consulted the late Dr. Budd, who diagnosed an abdominal tumor, and discouraged any surgical interference. The abdomen continued to enlarge slowly, and was uniformly hard and resistent to pressure; but the patient had little or no pain, and her general health continued fairly good until three months ago, when she slipped in the street and fell heavily on her left side. This was rapidly followed by all the symptoms of acute peritonitis; and, upon its disappearance, the abdomen was markedly altered in shape, although as large as ever. When admitted in this condition to hospital, the abdominal girth was 58 inches, and there was evidently a large solid tumor floating freely in fluid. No adhesions of any kind could be discovered; the uterus was normal in size, and not perceptibly connected with the tumor, although it was dragged up a little when the tumor was forcibly pushed upward, and the patient had never had either menorrhagia nor metrorrhagia. A small portion of the intra-peritoneal fluid was withdrawn, and showed evidences under the microscope of the so-called ovarian granular cell, as well as of Glüge's inflammatory corpuscles. The tumor itself was not tapped, for prudential reasons. Both the history and the symptoms led to the belief that the tumor was ovarian, and one of the surgeons who saw the case in consultation pronounced it with much confidence to be *ovarian adenoma.* An explorative gastrotomy was decided on, with the understanding that the tumor should be removed if practicable and consistent with the patient's safety. She was placed on preparatory treatment, and for a week did well, when, without apparent cause, she had several slight chills, the temperature ran up to 104°, the pulse to 130—140 in the minute—and slight vomiting was followed by severe abdominal pain. The patient's strength rapidly declined, and she presented all the evidences of a fresh peritonitis of septic character. The question of gastrotomy now became one of the last resource to save life, and as such it was performed on April 28, 1879. No special difficulty attended it. The abdominal cavity was filled with putrefying fluid; the peritonæum was universally inflamed, and covered with flakes of fresh lymph. The tumor, which was polycystic with very thick walls, sprang from the right ovary and broad ligament, but involved the right cornu and entire fundus of the uterus, which were inseparable from it. Not a single adhesion existed, and the large mass was easily removed after applying a temporary clamp and ligating the pedicle below it. These ligatures were unavoidably passed through the *fundus uteri*, which, with the balance of the pedicle, was secured in the abdominal wound. Scarcely two ounces of blood were lost during the operation, and the peritoneal cavity was thoroughly washed out with carbolized water before the wound had closed.

The patient reacted fairly, but never completely, and died of secondary shock twelve hours after the operation.

AUTOPSY FIFTEEN HOURS AFTER DEATH.

Body.—Emaciated. Incision in linea alba 20 centimetres in length, and extending nearly to the symphysis pubis.

Heart.—Decolorized. *Post-mortem* clot in right ventricle.

Lungs.—Extensive old pleuritic adhesions on right side; otherwise healthy.

Spleen.—Normal.

Kidneys.—Healthy. The left kidney has two ureters, which have a common opening into the bladder.

Liver.—Normal.

Peritonæum.—Acute general peritonitis. Thick, fibrinous deposits on visceral and parietal peritonæum, firmly agglutinating the intestines. A glass drainage-tube extends from the external incision into the vesico-uterine pouch. There is a small quantity of brownish fluid in the peritoneal cavity; no blood.

Uterus.—Uterine cavity measures from fundus to external os 9 centimetres—to internal os 6 centimetres; thickness of wall in middle of body, 1½ centimetre. Its right cornu is included by a ligature, which also embraces extremity of right Fallopian tube and adjacent portions of broad ligament. The uterus itself is essentially normal. The stump at its base is 13 centimetres in circumference.

Ovaries.—There is no trace of the right ovary. The left is somewhat enlarged—about twice the normal size—and its external surface peculiarly convoluted, like the convolutions of a child's brain. Its cut surface presents several small cysts.

Rectum, Bladder, and Vagina.—Uninjured and normal.

Tumor.—The mass which had been removed had a smooth surface, and contained a large number of cysts with a large amount of solid tissue. The largest cyst is about the size of a child's head, and presents externally an opening about 3 centimetres in diameter with lacerated edges, as if it might have ruptured spontaneously. Some of the cysts contain a brownish limpid fluid (hæmorrhagic), others transparent thin fluid, and many a yellow viscid fluid, such as is often obtained from ovarian cysts.

Brownish masses with glistening specks are floating free in some of the cysts: these consist of free fat and cholesterine crystals. In the fluid obtained from the cysts are also found the so-called ovarian corpuscles and the large inflammatory cells of Glüge.

The tumor measures laterally 37 centimetres; vertically, 25 centimetres; antero-posteriorly, 15 centimetres. On its lower surface is attached the right Fallopian tube with its fimbriated extremity, which has been divided close to its uterine attachment. The Fallopian tube has the remarkable length of 31 centimetres.

The tumor is therefore, pathologically, a multilocular adeno-cyst of the right ovary.

Notes of Hospital Practice.

CHARITY HOSPITAL.

OPHTHALMIC DIVISION.

Service of Thomas R. Pooley, M. D. Reported by J. Habirshaw, M. D., House Surgeon.

A Case of Exophthalmus resulting in Recovery.—J. D., æt. forty, Belgian, married, occupation tailor, was admitted April 1st, giving the following history. He stated that his family are all healthy, as far as his knowledge goes; they are all still living. Patient is of a bilious temperament. He has never enjoyed good health, and for a number of years has suffered from a dull headache, located principally in the temporal region, and at times a severe pain has been present in the lumbar region over the location of his kidneys. About ten years ago he noticed for the first time that his eyes were weak, and upon excessive use considerable pain and lachrymation followed, so much so that he states it was impossible for him to use his eyes with any comfort, save for but a short period during the day. The above symptoms grew gradually worse until five days before he entered this hospital; his pains increased daily in severity. At this time he was seized with dizziness; being at a dispensary for relief, he fell to the floor, and was unable to see at all for a period of about eighteen hours.

Patient now complains of palpitation of the heart, a difficulty in swallowing attended by frequent choking sensations in his throat; his breathing is labored, and he complains of a circumscribed pain located upon the right side of the chest in the vicinity of the nipple. He denies ever having had syphilis, but admits gonorrhœa, the attack being slight and continuing only for some two weeks. He has never been addicted to the excessive use of stimulants.

The condition of exophthalmus was very marked; so much was the protrusion of the eyes that with but slight pressure they could be nearly dislocated beyond the equator. He states that they were always somewhat prominent. The above condition was more marked in the left eye. Upon examination, slight œdema of the lids, swelling of the palpebral conjunctiva, and some muco-purulent secretion. The ocular conjunctiva is somewhat hyperæmic. The exophthalmus present is about three lines, little more marked in the left eye. Mobility is unrestrained in every direction. Palpation reveals no growth in either orbit. Pupils, medium width but sluggish. Ophthalmoscopic examination shows a normal fundus in each eye. Upon auscultation no bruit was found to be present. Vision of left eye $\frac{15}{200}$. Vision of right eye $\frac{22}{200}$.

There is no enlargement of the thyroid body. A careful examination of his chest revealed nothing save bronchitis. His heart was found to be normal.

April 2d.—Patient complained of pain in the hypogastric region. Upon examination a distended bladder was found, extending as far as the umbilicus. A catheter was introduced into the bladder, and forty ounces of dark-colored urine was withdrawn, containing a trace of albumen, and having a specific gravity of 1022. Temperature P. M., $102\frac{3}{4}$°. Pulse, 106. Respirations, 20.

Dr. Pooley saw the case, and confirmed the above. A 4-grain sol. atropiæ sulph. was used three times daily, and the eye kept clean by frequent washings.

3d.—Patient states he was only able to pass his urine by drops, which caused him much pain at each attempt. Temperature, $103\frac{1}{2}$°. Pulse, 112. Respirations, 20. In the morning his urine was again drawn, thirty-six ounces coming away. His general health being poor, the following prescription was ordered:

℞. Ferri et Quiniæ Cit.	ʒj.
Quiniæ Sulph.	ʒiss.
Acidi Hydrobrom.	℥j.
Syp. Prunus Virg. q. s. ad	℥ij.

M. Sig. ʒj, three times daily.

Hypodermic injections of strychniæ sulph. gr. $\frac{1}{48}$ were given morning and evening. His bladder was washed out twice daily, and at each washing ʒiij fluid ext. ergot (Squibb) was thrown in and allowed to remain for about half an hour. His condition gradually improved, his temperature ranging in the morning 101° Fahr., evening 98½°. Exophthalmus gradually decreasing.

9th.—Slight œdema of lower extremities was noticed, when diuretics were ordered. His condition of atony of bladder gradually improved, the amount of urine drawn decreasing each day, to-day there being thirty ounces.

12th.—Exophthalmia becoming less marked. Amount of albumen in urine decreasing. A small amount of mucus is present. Temperature, 99° in morning; in evening, 101°. The ferruginous tonics were omitted and patient ordered quiniæ sulph. gr. v. t. i. d. Patient now passes nearly all urine without aid of catheter. The treatment prescribed for his bladder continued.

15th.—Exophthalmus has now entirely disappeared. His urine contains only a trace of albumen. The range of temperature continues, with morning and evening variations, A. M. 101°, P. M. 99½°. His bladder has been washed out twice daily. This morning, by percussion, considerable dullness was found over region of bladder, and upon introducing a catheter ℥xxvij were drawn off. The injection of ergot was now stopped, and a solution of vinegar was used in washing.

17th.—Temperature normal. ℥xxvj of urine drawn. Patient feels well and has a good appetite.

18th.—A. M. temperature 101°; P. M. 98½°. ℥xxxvj of urine drawn. Bladder injected three times.

19th.—A. M. temperature 101½°; P. M. 99°. ℥xxx of urine were drawn. Patient is now able to pass considerable urine.

20th.—A. M. temperature 98¾°; P. M. 101¼°. ℥xx of urine were drawn. Upon microscopical examination, the urine was found to contain a large quantity of vibrios, but no albumen could be detected. His general health is much improved, and the appearance of his eyes is normal. Sodæ sulphit., gr. xv t. i. d., was ordered.

21st.—Temperature normal. ℥ xv of urine drawn.

22d.—Temperature normal. Passes all his urine. All products of decomposition have disappeared from his urine. Patient is out of his bed, walking around, and says he feels weak.

23d.—Temperature normal. Bladder has resumed its normal function. Sodæ sulphit. stopped. The following prescription was ordered:

℞.	Strychnia Sulph.	gr. ss.
	Ferri et Quiniæ Cit.	ʒ ss.
	Tr. Cinchona Co.	℥ j.
	Aqua Cinnamom. q. s. ad	℥ ij.

M. Sig. ʒ j t. i. d.

Hypodermic injection omitted.

May 1st.—Patient's condition has been gradually improving, and considers himself sufficiently well to be discharged.

3d.—Patient was discharged from hospital, the exophthalmus and atony of bladder having disappeared, as well as all symptoms indicating nephritic trouble.

In this case it would seem that the exophthalmus was due to the same condition which produced the atony of bladder and dropsy.

The protrusion of the eyes, which was excessive, and produced a marked deformity, was in all probability caused by œdema of the orbital tissue, since it decreased, and finally entirely disappeared, *pari passu*, with the patient's restoration to health.

Diabetes.—The case of diabetes reported in the last number of the Journal died March 16th. For a month before death the cinchonidia was discontinued, and no medicine given. The diet was restricted. The amount of urine passed during the last week was 837 ounces.

Autopsy showed chronic catarrhal pneumonia of the upper lobes of both lungs. The pneumonia resulted in numerous cavities, some of them having gangrenous patches. The kidneys were deeply congested and increased in size.

Purulent Otitis Media; Trephining of Mastoid Cells; Paralysis of the Face.—A man was admitted to the hospital suffering from purulent otitis media, with facial paralysis. The ear was suppurating freely, but there was marked swelling over the mastoid portion of the temporal bone. It was considered best to trephine the temporal bone. After an opening was made a large amount of pus escaped. Injections carried into the ear escaped through the opening in the bone. The pain in the temporal region was relieved after the operation. An important point in the case was the paralysis of the muscles supplied by the facial nerve. The uvula was turned to one side, showing that lesion in the nerve occurred beyond the origin of the chorda tympani nerve.

Cystic Degeneration of Chorion; Death.—A woman, aged 30, the mother of seven children, was kicked by her husband in the vulva. Profuse bleeding followed, but no signs of external laceration were observable. She considered herself to be at that time over a month pregnant. After a few days she was able to go about, but after two weeks a tumor was found in the pelvis, which rose above the symphisis pubis, and was as large as a pregnant uterus at four months. During the following three weeks the tumor rapidly increased in size. At five weeks from the date of injury it had reached the size of a seven-month pregnancy. The patient suffered from Bright's disease, and died of exhaustion. During the progress of the case there was no watery discharge from the uterus, as found in cases of cystic degeneration. There was, however, hæmorrhage, which continued till a week before death. The blood which escaped was in the form of broken-down clots.

The diagnosis of cystic degeneration was based upon the rapid increase of the uterus. The autopsy showed the uterus to be filled with a gelatinous mass. There were no signs of an embryo, but in the abundance of the cystic degeneration it could not have been discovered without the greatest difficulty.

WOMANS' HOSPITAL.

Laceration of Perineum including the Sphincter of the Anus.—A woman entered the service of Dr. F. A. Emmet suffering from laceration of the perinæum, which included the sphincter ani. She had been operated on previous to her admission to hospital, but the union obtained was not sufficient to control the sphincter.

Dr. Emmet separated the band of union and denuded the lacerated surface as far as was indicated by the presence of cicatricial tissue. The denudation was then carried downward to the edges of the sphincter. These edges were shown by the presence of two little pits, the result of contraction of the muscle. The first suture was introduced high up through the undenuded surfaces of the labia and posterior wall of the vagina and twisted. (The reason for this will be apparent later on.) The second suture was introduced behind the edge of the sphincter, as indicated by the pitting. It was then carried around the angle of laceration in the recto-vaginal septum and allowed to emerge behind the other edge of the muscle at a point corresponding to the insertion. The third and succeeding sutures were then carried through from one denuded labium to the other, each passing higher up on the recto-vaginal wall till the upper portion of the denuded laceration was reached; they were then twisted, commencing with the suture lowest down. The eversion which occurred from bringing the sutures together was pressed back with the handle of an instrument. When the first or higher suture was reached it was untwisted, and the tongue of vagina included in it adapted to the perineal line of union. It was then again twisted and the operation completed. The use of bringing the undenuded labia and vagina together by means of a suture is to prevent tension on the edges of the coapted surfaces, and to keep the urine or uterine discharges from irritating the edges or passing down between the approximated surfaces. There is practically no line of union in the vagina, as the tongue of vagina already referred to reaches the exterior surface and forms a complete reparation of the injury. The free ends of the sutures were secured together in the usual way and the patient removed to the ward.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 3, 1879.

Dr. Fordyce Barker, President.

Classification of Phthisis.—Dr. James R. Leaming read a lengthy paper on the classification and pathology of phthisis. It contained the view hitherto advanced by Dr. Leaming, that, in a large number of cases, pleurisy was the starting point of pulmonary phthisis. The classification proposed was based on the recognition of two principal classes of phthisis, *tubercular* and *fibroid.* The tubercular was subdivided into uncomplicated tubercular lung, and tubercular lung with fibroid pleura. The fibroid, into fibroid lung and pleura, and fibroid lung and pleura with tubercular formation.

The uncomplicated tubercular lung, he thought, was rare The fibroid pleura and tubercular lung was more common the condition of the lung being second to that of the pleura. The fibroid lung and pleura was of less frequent occurrence than the same condition complicated with tubercular disease.

Dr. Austin Flint said the classification proposed in the paper was novel, and he did not feel prepared to accept it, or take issue with it. He thought that the pleurisy in phthisis was secondary rather than primary, but was willing to accept the result of studies based on clinical and histological research.

Dr. A. L. Loomis thought the paper deserved careful consideration, but he held that any classification of phthisis must rest on the cause, clinical history, and histology. Some morbid changes were yet in dispute, and until a conclusion was reached the matter must remain unsettled. He did not understand rightly the idea Dr. Leaming wished to convey by "fibrination or plastic exudation," but he thought that in a large number of cases changes could be observed in the lung before being detected in the pleura. In many cases it was impossible to say which was the original lesion, for the reason that the disease was so advanced, and but little could be hoped for from auscultation, as different observers estimated from different standpoints what a certain sign might indicate. The division of phthisis that he found most satisfactory to himself was the catarrhal, tubercular, and fibrous.

Dr. E. D. HUDSON agreed with the views presented in the paper. He thought that Rindfleisch confirmed them in his statement that in every case of pleurisy a certain number of air-vessels beneath the affected pleura became consolidated.

Dr. E. G. JANEWAY did not agree with Dr. Leaming that pleurisy was the cause of phthisis, as a rule; on the other hand, he thought that pleurisy was a secondary process, as proved by autopsies. Pleurisy might cause tuberculosis by septic reflection. He had seen two cases where general tuberculosis occurred under such circumstances. Fibroid disease of the lung, in his experience, was rare, unless reference was made to thickening of the connective tissue with the presence of lymphoid cells.

So far no conclusion had been reached by pathology as to what tubercle really was. The authorities, and Rindfleisch particularly, showed a tendency to go back toward the old ideas. Experiments on rabbits have proved that, when they were made to breathe the sputum of phthisis, tubercle appeared in the lungs; and, if more extended observations confirmed what has already been reported, a decided change must be made in regard to our views on tubercle.

Stated Meeting, May 1, 1879.

Dr. FORDYCE BARKER, President.

Strangulated Hernia.—Dr. FRANK HAMILTON read an exhaustive paper on the pathology, etiology, and treatment of strangulated hernia. He specially directed attention to the value of the inverted position in relieving the strangulation after all other measures failed.

Dr. POST said strangulation of the intestine was only of sudden occurrence in one variety of the disease, strangulated congenital hernia occurring in the adult. The first case brought to the attention of the New York surgeons was one which occurred many years ago in his service at the New York Hospital. A sailor, while working at the capstan, received a sudden strain, but did not enter hospital till three days after the injury. There was then a swelling in the scrotum that closely resembled orchitis. The patient was operated on, but death occurred from peritonitis. Since that time, different cases have been reported. Dr. Post agreed with Dr. Hamilton in regard to the advantage of the inverted position.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, April 23, 1879.

Dr. E. L. Keyes, President.

Multiple Exostosis.—Dr. V. P. Gibney presented a boy aged sixteen, suffering from multiple exostosis. He was exhibited to the Society in 1875, for the same affection, and the interest of the case then rested on the existence of an exostosis about the left hip-joint, giving signs of disease of that articulation. He had only one week of pain in the last four years, and that was of a mild character. He presented himself recently at the Hospital for the Ruptured and Crippled, wishing information as to the ultimate prognosis of the case. The bony tumors were increasing in size. They exist symmetrically near the proximal ends of the humeri, the distal ends of the radii, and the heads of the tibiæ, and vary in size from that of a peanut to that of a walnut. There is one on the first phalanx of the index-finger, and above the trochanter major on the left side. None of the joints were interfered with, and it was thought that at the age of the patient no great increase would take place. Several photographs were shown, illustrating other cases of general exostosis.

Stricture of Œsophagus.—Dr. Elsberg presented a specimen of cancer of œsophagus. The patient came under observation two months previously, and at that time had a slight contraction of the œsophagus at the level of the cricoid cartilage. Below that there was a stricture which admitted a sound one quarter inch in diameter. Death took place from exhaustion. At the autopsy, the tumor was found attached to the vertebral column. There was a perforation extending from the œsophagus into the trachea. In answer to a question from Dr. Loomis, Dr. Elsberg said that the operation of gastrotomy would not have been indicated, from the debility of the patient.

Foreign Body in the Eye.—Dr. H. Knapp presented an eye containing a fragment of brass which had been in the vitreous for six years. The patient was seen by Dr. Knapp at the time of the injury. There was then a wound in the cornea, with adhesion of the iris to the lens. Last week the eye became painful and was enucleated. A chip of brass was found resting on the ciliary body. From an examination of the specimen it would seem that the foreign body penetrated the lens and struck against the retina, causing a scar which was seen in the specimen. Subsequently it became detached and gravitated toward the ciliary body.

Plastic Cyclitis.—Dr. Knapp also presented an eye showing a false membrane lining the ciliary body. The patient was a girl, and came under observation four or five months ago, suffering from irritation similar to that produced by a foreign body. The iris and lens were protruded. There was also complete cataract. The eye was removed after two days, and was found to present a typical case of plastic cyclitis. The anterior portion of the vitreous was liquid, the posterior tenacious. Dr. Noyes had a case of cyclitis in a child four years of age. When examined by the ophthalmoscope a white mass could be seen near the ciliary body. There were other signs also indicating cyclitis. There were no symptoms, so far, which indicated removal of the globe.

Filaria in the Horse.—Dr. Noyes presented a filaria which the had removed from the eye of the horse.

Sarcoma of Cerebellum.—Dr. Peabody presented a specimen of sarcoma of the cerebellum, which was obtained from a patient who died on the way to the New York Hospital. There were no symptoms of brain disease till March, 1878. During October, 1878, sudden paralysis of arms and legs appeared. Ergot and iodide of potassium were given with benefit, but the pain in the head continued. About the middle of December the patient was removed to the New York Hospital, but before reaching that institution death occurred. On the morning before undertaking the journey to the hospital, the health was as good as usual.

Autopsy.—A tumor of the cerebellum was found resting on the pons and medulla. It was not continuous with the brain substance. It measured 1½ inch in one diameter by ¾ inch in the other. It had atrophied, by pressure, the fifth, sixth, and seventh nerves, and eroded the bone beneath. No tumors were found anywhere else.

Aortic Aneurism simulating Cardiac Aneurism.—Dr. Loomis presented for a candidate a case of aortic aneurism, which was of interest from the close resemblance it bore to aneurism of the heart. Dr. Loomis saw the case before death, and found a pulsating tumor over the heart. The heart was not displaced to the left. He made a diagnosis of aortic aneurism, and rested his opinion, in great part, on the fact that there was absorption of the chest-wall over the tumor. He had never seen a case of cardiac aneurism in which there was such absorption, and held it to be an important point in diagnosis.

Autopsy.—One inch above the aortic valve the aneurism was given off. It then passed forward between the pericardium and ventricular wall. Both ventricles were dilated and hypertrophied.

Catarrhal Phthisis ; Œdema of Lungs.—Dr. Beverly Robinson presented a specimen of catarrhal phthisis in which death occurred suddenly, due, as he supposed, to œdema of the lungs. He thought that many cases of sudden death following aspiration of the pleura were also due to œdema of the lungs.

Stated Meeting, May 14, 1879.

Dr. E. L. Keyes, President.

Amyloid Degeneration of the Placenta.—Dr. C. Heitzman presented microscopical specimens of amyloid degeneration of the placenta. He had examined five placentæ, occurring in cases of premature labor from the fifth to the eighth month. The fœtuses were born alive but died shortly afterward.

The placentæ were such as would usually be considered to have undergone fatty degeneration. Yellowish or grayish patches were scattered throughout the decidua and villosities. There was no noticeable change to the eye. Under the microscope there was homogeneous degeneration of the myxomatous tissue, the reticulum of which was completely lost. Many of the capillaries were wanting, both in the decidua and villosities. This latter circumstance seemed to have interfered with nutrition and caused premature birth. The changed parts were without marked structure, but gave the reactions of amyloid degeneration. In answer to a question by Dr. C. C. Lee, Dr. Heitzman said the microscope had contributed but little in the way of suggestions as to treatment.

Perinephritis, Peritonitis, Cystitis.—Dr. C. C. LEE presented the urinary organs of a patient aged thirty-six, who died in the Woman's Hospital. She had been sick eighteen months with cystitis, and entered hospital October 22, 1878. Cystotomy was performed with relief to the cystitis. Subsequently chill and swellings supervened, with pain in the region of the kidneys and fluctuation. Aspiration was performed on three different occasions and pus withdrawn. An opening was subsequently made and the abscess washed out. Death occurred April 24, 1879. The autopsy showed a perinephritic abscess which had opened into the peritoneal cavity, and discharged eight ounces of pus. This had become encapsulated. The left kidney was sacculated, and on its anterior surface was the abscess. The right kidney was enlarged.

Adeno-cystic Tumor of Right Ovary.—Dr. LEE also presented an adeno-cystic tumor of the right ovary which he had removed at the Woman's Hospital. The patient was thirty years of age, and had one child five years ago. After her labor the abdomen did not decrease in size. On one occasion she had a fall which altered the shape of the abdomen, but did not decrease its size. Following this injury she had an attack of peritonitis; she was admitted to hospital April 12, 1879, and on examination a hard floating tumor was found in the abdomen. For ten days she did well in hospital, but then began to fail. It was decided, although the case was unpromising, to perform gastrotomy. This was done on April 28th.

The uterus and broad ligament were involved in the tumor; and, after removing the mass, a portion of the uterus was secured in the clamp as a pedicle. Death occurred twelve hours afterwards from secondary shock. An examination of the tumor showed it to be of the class known as adeno-cystic. It was ruptured at one point in consequence of the fall complained of in the early part of the history.

Larynx of a Leper.—Dr. Elsberg presented the larynx of a patient who suffered from leprosy and died in Charity Hospital. The base of the tongue was nodular. The epiglottis was swelled and ulcerated at the apex. The vocal cords were thickened and nodular.

Valvular Disease of Heart.—Dr. Robinson presented a specimen of chronic endocarditis, with history.

Diverticulum of Small Intestines.—Dr. J. Lewis Smith presented a specimen of diverticulum of the small intestines.

Spina Bifida.—Dr. Smith presented a specimen of the vertebræ involved in a spina bifida. It was transferred to the Microscopical Committee.

Strangulated Hernia in a Child.—Dr. Smith presented a strangulated caput coli obtained from a child, aged eight months, who died without operation. The condition of the patient precluded any operative interference.

Pleurisy in Children.—Dr. Smith presented the lungs of a child who died from pleurisy. He had seen three cases in four weeks at the New York Foundling Asylum, and thought that many children supposed to suffer from bronchitis or bronchopneumonia in reality suffered from pleurisy.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Dr. F. J. Bumstead, President.

Stated Meeting, April 28, 1879.

Extirpation of the Bones of the Nose and Mouth by the Use of the Surgical Engine.—Dr. D. H. Goodwillie read an interesting paper on the use of the surgical engine in the removal of obstructions and dead bone in the nasal fossæ. The surgical engine is identical in construction with the dental engine, and the knives which are employed are similar in form with the dental burs, but larger. Several wax casts were shown which represented cases before and after treatment. The nasal specula were longer than those generally employed, and had a third blade, or depressor. They were made of wire. The most interesting instrument he presented was a gag used to close the posterior nares and prevent the passage of blood into the trachea when the patient was under the influence of an anæsthetic. It consisted of a hinged mouth-piece fitted to the teeth, and was opened by means of a screw, thus putting the jaws on the stretch. When made secure a sliding bar passed through it, and was carried backward on the soft palate till sufficient pressure was made to close completely the posterior nares. With this instrument in position the surgeon had no possible risk of death from dyspnœa as a result of clotted blood in the larynx and trachea.

It is necessary to have the head of the patient securely fastened, as a sudden movement might cause severe injury. This will be better understood, when it is borne in mind that the knives make from 2,500 to 3,000 revolutions per minute. Dr. Goodwillie said that the revolving knife was relatively painless, and was of service in opening abscess in the antrum or other situations, in removing necrosed bone or hypertrophied tissue, and as a substitute for the bistoury in cases where a free opening was desirable. He reported several cases of syphilitic necroses of the nasal bones, where an opening existed in the hard palate. After the cure was complete, the palate was closed by the ordinary plastic operation. It was important in bringing the flaps together to see that there was no tension on the sutures. It was usually necessary to make incisions parallel to the opening to obtain this result. It was also necessary to draw a probe through these incisions every day to remove the granulations and prevent union. A gutta percha plate was applied to the roof of the mouth, so that portions of food might not force themselves into the line of union.

Several cases were reported in which an hypertrophied condition of the mucous membrane caused obstruction to thenasal passage. In these cases the circular knives were carried directly through, making an opening of the required size.

Intra-Vascular Alimentation; the Nutritive Value of Peptones.—Dr. George B. Fowler read a paper (which will be found in full elsewhere) on the intra-vascular administration of peptone or albuminose. He said it was a well-demonstrated fact in intra-vascular injections that nitrogenous substances which had not been converted into peptone or albuminose could not be assimilated by the blood, but were excreted by the urine. On the other hand, albuminose, when introduced into the vascular system, could not be detected in the urine by the proper chemical test.

Dr. Fowler presented some specimens of albuminose made by digesting beef with dilute hydrochloric acid, and stated that he had used it in one case as an intra-vascular injection.

Dr. John C. Dalton said it was not known how many peptones there were, but they all resembled each other and formed one class. They are not coagulable by heat and are readily diffusible through animal membranes. It was difficult to understand why they did not pass out through the kidneys, but appropriate tests proved that they were not found in the urine. He thought Dr. Fowler had wisely headed his paper intra-vascular alimentation in contradistinction to transfusion.

Dr. Fowler in closing said that it was important to bear in mind that peptones entered the portal system and passed through the liver before entering the circulation. What changes occurred in that organ were but feebly understood.

NEW YORK THERAPEUTICAL SOCIETY.

The seventh stated meeting was held April 18, 1879, Dr. Leaming, President, in the chair. The Committee on Antipyretics presented the following report:

Provisional Report on the "Sedative" Dose of Calomel.—Cases by Drs. Leaming, A. H. Smith, Bradley, Greene, Petit, Abbe, Hudson, Lente, Agnew, Bayles, McLean, McFarland, Baker. Analyzed by Dr. Putnam Jacobi, Secretary of Committee on Antipyretics.

The 50 cases presented to the committee are comprised in the following tabular summary:

SUMMARY.

NAME.	DISEASE.	NO. OF CASES.	
A. H. SMITH.	Diphtheritic croup	2 (deaths).	10
	Laryngitis and tracheal catarrh	1	
		1	
	Acute encephalitis	1 (death).	
	Tubal nephritis (anasarca and uræmia)	1 (death).	
	Dyspnœa from hydrothorax in nephritis	1	
	Pleuro-pneumonia	1 (death).	
	Lobular pneumonia-phthisis	1 (death).	
	Mitral disease in nephritis	1	
BRADLEY.	Pneumonia		5
ABBE.	Pleuro-pneumonia	2	8
	Catarrhal pneumonia	1 (death).	
	Subacute pleurisy	1	
	Pleuritic effusions	1 (death).	
	Phthisis	1 (death).	
	Rheumatic endocarditis	1	
	Pleuritis and endocarditis	1 (death).	
GREENE.	Pneumonia		7
PETIT.	Pleurisy (?) (broncho-pneumonia.)		1
MCFARLAND.	Pneumonia		1
LEAMING.	Central pneumonia	1	5
	Catarrhal pneumonia	1	
	Pleuro-pneumonia	1	
	Pulmonary œdema	1	
	Hydrothorax in nephritis	1	
HUDSON.	Pleuro-pneumonia	1	4
	Pulmonary congestion	1	
	Pulmonary œdema	1	
	Fatty heart	1	
LENTE.	Capillary bronchitis		1
AGNEW.	Inflam. eye after operation for cataract		1
BAYLES.	Endocarditis	1	4
	Mania	1	
	Sprained ankle	1	
	Gastric irritation	1	
MCLEAN.	Pleuritis (?) broncho-pneumonia		2
BAKER.	Pleuro-pneumonia		1
		Total	50

Thus we have 50 cases of various diseases reported, with a net result of 41 recoveries and 9 deaths. These cases may be classified as follows:

DISEASE.	RECOVERIES.	DEATHS.
Pneumonia	20	3
Pulmonary congestion or œdema	3	..
Capillary bronchitis	1	..
Chronic pleuritic effusion in heart or kidney disease	2	1
Pleuritis (or so diagnosed)	3	1
Phthisis	..	1
Cardiac disease	4	..
Diphtheritic croup	..	2
Encephalitis	..	1
Nephritis	1	..
Laryngitis	2	..
Laryngeal catarrh	1	..
Ophthalmitis	1	..
Irritative fever	1	..
Gastritis	1	..
Melancholia and convulsions	1	..
Total	41	9

The cases of acute pneumonia comprise 14 of croupous pneumonia, and 8 of catarrhal pneumonia.*

In six of the first cases the calomel was given when symptoms of suffocation appeared, depending either on the extent of the exudation or of collateral congestion. Four of these cases are reported by Dr. Bradley. In the first patient, an Irishwoman, aged 46, the first examination of the lungs is said to have disclosed tubular breathing and dullness on percussion over lower half of both lungs. It is not noticed how long after the initial chill this was discovered; but the report states "that by the end of 48 hours nearly the whole of both lungs became involved, and the respirations increased to 47 in a minute, and the patient was cyanosed." At this time 40 grs. of calomel were placed on the tongue. But at the same time the patient was treated by continuous inhalations of oxygen gas, and received 1 grain of digitalis and 5 grs. of quinine every 4 hours. In 8 hours an improvement was perceptible, i. e., after 40 grs. calomel, 2 grs. digitalis, and 10 grs. quinine, had been administered. Forty grs. of calomel were given again 12 hours later, and respirations had fallen to 30, and the cyanosis had disappeared.

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* The Reporter would call attention to the fact that all cases of *acute* pneumonia, though ushered in by a chill, and attended by pain and high fever, are not cases of typical lobar, i. e., croupous pneumonia, or pneumonia fever, but may easily be catarrhal or "lobular" pneumonia, even when extending over an entire lobe of a lung. But in catarrhal pneumonia, the pulmonary alveoli have always become invaded by a catarrhal inflammation extending downward from the bronchial tubes, and alveolitis is secondary to a bronchiolitis; but in croupous pneumonia the mucous membrane of the lungs remains untouched, while the alveoli are suddenly filled by an exudation of fibrine, almost as if a hæmorrhage had taken place into them. Thus, as Buhl well remarks, the lesion of a croupous pneumonia lies, as it were, *outside* of the parenchyma of the lung.

In the second case, the lungs were examined 48 hours after the appearance of the initial chill and rusty sputa, and dullness was said to be found over the entire right lung and lower half of left. No auscultatory signs are mentioned, except increased vocal resonance. The respirations were then 42, the dyspnœa intense, countenance described as livid; 60 grs. of calomel were given at once, but followed by 1 gr. of digitalis and 3 grs. of blue mass every 6 hours, while frictions and alcoholic stimulants were freely employed. The treatment, therefore, was again complex. On the following day the cyanosis had disappeared, respirations only 28, convalescence established on 11th day.

In the third case the dypsnœa became urgent almost at the same time as the occurrence of the chill. On first examinations of lungs, dullness was found over lower three-quarters of both lungs, with tubular breathing. It is added that "coarse crepitation was audible over deep-seated portion of lungs, while fine crepitation and mucous râles were heard on the surface;" but this description seems to the Reporter to be obscure. Thirty grains of calomel were given, and, as before, stimulants, friction, and quinine employed. In 10 hours, it is said that the area of dullness was diminished, and the dyspnœa relieved. [It seems more probable that the diminution in the area of dullness was due to diminution of collateral congestion, than to reabsorption of products of exudation.—Rep.]

In the fourth case dullness extended over lower two ninths of right lung, and on second day the left lung was involved to a similar extent. The respirations were forty-four, but there is no description of cyanosis; 40 grains of calomel were given, and 18 hours afterward the respirations were twenty-eight in a minute. This is the first case where no stimulants were given until after the unaided action of the calomel had been observed. They were then administered, and followed by recovery in ten days.

In regard to these four cases the Reporter would notice first, that, with one exception, the calomel was never employed alone, but in combination with other powerful remedies. Second, that the dose varied from 30 to 60 grains, for conditions closely resembling each other, but there was no variation in the results in any way proportioned to this enormous difference in the dose. Third, in all cases the symptoms of dyspnœa, urgent to the point of suffocation, was relieved in 8, 10, or 18 hours after the administration of the calomel.

The two next cases are more briefly related. The first is by Dr. Hudson, who states that, at the time of giving the calomel, "a croupous pneumonia and pleuritis existed over the left lung, and at the lower portion of the right." Two doses of calomel were given, each 30 grains. It is not stated at what interval, nor are we told what symptoms were relieved, but only that the "process of active inflammation seemed to be directly aborted." In the sixth case, reported by Dr. Leaming, the pneumonia was central, and at the time of administering the calomel no physical signs had been discovered. The degree of dyspnœa is not stated, the most urgent symptom being severe pain in the right hypochondrium; temperature was 104° or 105°. On the next day this pain was relieved; at the same time the pneumonic process was found to have extended to the surface, and crepitant râles and bronchial breathing were heard at the apex.

In the seven cases reported by Dr. Greene, the author does not draw a distinction between croupous and catarrhal pneumonia; and the only physical signs described are subcrepitant râles and more or less dullness to percussion. In three of the cases, however (Nos. 1, 6, and 7), an attack is said to have been preceded by influenza or bronchial catarrh, and for this reason we presume the pneumonia to have been secondary to a bronchiolitis. In the description of all the cases, Dr. Leaming's interpretation of the subcrepitant râles is followed, and those said to indicate a pleurisy rather than a bronchitis, as would be the more usual interpretation.

In the four cases unpreceded by signs of bronchial catarrh, the calomel was given on the first day, a few hours after the chill and fever, and when the temperature in three cases was 103°, in one case 105°. In two of the cases no marked effect was produced on the temperature by the first dose; that is, in one, the temperature fell from 105° in the evening to 104° in the morning [but this was evidently not to be attributed to the calomel.—Rep.]. In the other case, the temperature remained at 103°. In both these cases, the calomel was repeated two days later, and then the temperature fell to normal. In the other two cases the temperature fell after the first dose. The physical signs were not materially changed until convalescence occurred, which was regular.

The eleventh case is reported by Dr. Leaming. The calomel was given on the second day, and twelve hours later the temperature was found to have fallen from 103·6° to 101°. The physical signs were unchanged.

The twelfth case is by Dr. Baker: 40 grs. of calomel were given several days after the beginning of disease, when temperature was 104°; urgent insomnia existed, and delirium was threatened. Temperature was not changed twelve hours after the calomel, but sleep was induced in an hour. In this case temperature fell in eleven hours after administration of about 50 grs. of quinine.

The thirteenth case is by Dr. Smith. Physical signs detected on second day of illness, when temperature was 103°; 25 grs. calomel given; catharsis in four hours, while temperature still unchanged. Twelve hours later temperature normal; did not again rise until just before death, which occurred one week from beginning of illness. Delirium returned on the same day that the temperature became normal, and continued until death.

The fourteenth case is by Dr. McFarland, assisted by Dr. Leaming in consultation. The patient was a gentleman attacked with pneumonia after a period of dissipation. On the same day as the chill, physical examination of the chest discovered "marked engorgement and commencing exudation of right lung." There was a good deal of pain and dyspnœa, and the patient expectorated almost clear blood. Pulse 148, temperature not taken. The treatment was begun with quinine, 5 grs. every two hours. But the next morning the temperature was 105°, the other symptoms the same. On the third day the temperature rose to 107°, and pulse was 160, and patient delirious. Late on this day, Dr. Leaming saw the case for the first time, and substituted a 30-gr. dose of calomel for the quinine which had, up to that moment, been regularly administered. Stimulants were given freely. On the night following the calomel, the patient slept for a couple of hours, and the next morning there was slight amelioration of all the symptoms. The history does not state precisely what degree of decrease was observed in pulse and temperature. On the evening of this, the fourth day, and twenty-four hours after the first dose of calomel, the temperature was again 107°, the pulse 160, and the delirium pronounced. On the fifth day, symptoms unchanged, and the inflammation began to extend to the left lung. On the evening of this day, 60 grs. of calomel were given as before, dry on the tongue. The patient slept four hours, then the bowels were freely moved, and there was "slight decrease" of pulse and temperature. Stimulants were continued. On the next day (the sixth), there was marked improvement, and temperature was 105°, the pulse 140, dyspnœa less. From this date the patient progressed steadily toward convalescence.*

There are eight cases of catarrhal or broncho-pneumonia.

The first, reported by Dr. Leaming, occurred in a patient affected with double chronic adhesive pleuritis. On the day of the chill, abundance of soft râles were heard in the left lung. The respiration is noted as frequent, and the cough as constant and painful. The 30-grain dose of calomel was followed on the same day by great relief to the pain. The physical signs remain unchanged.

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* This was certainly a case of recovery from a serious attack of pneumonia, under the use of two large doses of calomel. The reporter, however, must call attention to the fact, that defervescence did not take place till the sixth day, precisely the period for spontaneous defervescence in acute croupous pneumonia, and that the large dose of calomel given on the third day, while the march of the disease was still ascending, proved as inoperative as the quinine and morphine had been to check its progress. The only distinct effect obtained was the two hours sleep.

Second case, by Dr. Bradley. A child of five years, who, in the course of a protracted whooping-cough, was seized with double [broncho] pneumonia, complicated by pericarditis. At the time of giving the calomel, two thirds of both lungs were consolidated, the respirations were 40 to the minute, the face beginning to be cyanosed. Dr. Garrigues, who first saw the patient with Dr. Bradley, thought it impossible that the child could live. Dr. Leaming saw the child in consultation, and at his suggestion 15 grains of calomel were given at once. Eight hours afterward the respirations had fallen to 27, and the cyanosis had disappeared. The subsequent treatment was complex. The child made a good recovery.

Fourth and fifth cases, by Dr. Abbe, are of chronic phthisis, in which it is to be presumed the calomel was given for an intercurrent catarrhal pneumonia; but the acute symptoms are not described. Thirty grains of calomel were given to each of these patients without affecting the physical signs in the lungs. One of the patients died two days after receiving the medicine; the other left the hospital a few days after the subsidence of the purgative effect.

Third case, by Dr. Abbe. Acute pleuro-pneumonia in a patient affected with chronic cough. From this detail the Reporter is led to consider the case as a catarrhal pneumonia. At the end of a week of the acute illness the patient suffered from extreme dyspnœa and partial cyanosis. Thirty grains of calomel were given, and the dose repeated four days later and again three days later. On the eighth day after the first dose the dyspnœa "was less."

There are, finally, three cases, reported by Dr. Greene, of Elizabeth, in which the pneumonia seems to have been a broncho-pneumonia, succeeding to a catarrhal inflammation of the upper air-passages.

The first case was in a man forty-eight years old, noted as weighing 248 lbs. On the day of the chill delirium set in, and in a few hours the temperature was 105½°. At this early date 40 grains of calomel were given, and four hours later were followed by both purging and vomiting. The temperature then fell to 104°. Quinine was then given in doses of 15 grains every eight hours. Up to this time the physical signs consisted in fine subcrepitant râles, and moderate dullness over left side of chest. The quinine treatment was continued for six days, and the temperature fell to 103⅕°, the pulse to 105, the respiration to 26. [The patient, therefore, was evidently improving.—Rep.] On the evening of the sixth day Dr. Leaming was called in consultation, and advised a repetition of the calomel dose. This, given as before, was followed in five hours by purging, so abundant as to cause some faintness. The next day the temperature was 100⅕°, the pulse 100, the respiration 20. [The most marked effect, therefore, was on the temperature.—Rep.] From this date the convalescence began, and was completed at about five weeks from the beginning of the illness.

The second case was in a young man aged nineteen, attacked with pneumonia after a week of naso-pharyngeal catarrh, attended by considerable constitutional disturbance. A few hours after the initial chill the temperature was 106°, and the patient slightly delirious. The report says that "the physical signs of pleuro-pneumonia were present." Thirty grains of calomel were given, and operated freely on the bowels in four hours. The temperature was then found to be 104⅗°, the pulse fallen from 130 to 120. Quinine was then given in doses of 15 grains every ten hours, and this treatment continued during three days, when the temperature was 103⅕°, the pulse 122, the respiration 30. The dose of calomel was then repeated, and, as before, operated freely in four hours. A few hours later the temperature was found to have fallen to 101°, the pulse to 108, the respiration to 25. From this time convalescence was steady and rapid.

The third case was in a woman fifty-four years of age, attacked with pneumonia during convalescence (?) from a slight attack of influenza. At the time of giving the calomel the temperature was 103°, the pulse 122. The physical signs are stated as indicating "acute plastic (*sic*) of the left pleura, covering the middle and most of the upper lobe." On the day following the calomel the temperature was 102⅕°, the pulse 115. Ten grains of quinine were given every eight hours during three days, at the close of which period the temperature was still 103°. The calomel was then repeated, and followed by castor-oil, the two together producing abundant purgation. On the following day the temperature was 101,° the pulse 108, and the defervescence rapidly became complete.

To these cases of pneumonia, diagnosed as such, we should be inclined to add two others reported as "acute plastic pleurisy," on account of the existence of diffused subcrepitant râles, which, by some observers, would be considered indicative of a broncho-pneumonia.

The first of these cases is given by Dr. McLean. It was first seen after an illness of several days—temperature 104½°—with insomnia and threatened delirium. No physical signs stated, except dullness on percussion. Forty grains of calomel were followed by sleep in an hour. In twenty-four hours the temperature had fallen to 101°. No record is made of the physical signs.

The other case is by Dr. Petit. First seen on the fourth day; temperature then 105°. Subcrepitant râles were heard over the whole of right lung, without, it is said, bronchial breathing or dullness on percussion. Three days after the dose of calomel the temperature was 103·40°, and the subcrepitant râles had extended to the left lung. On this the sixth day of the illness the calomel was repeated, and two days later the temperature was normal. [Thus at the natural time of defervescence.—Rep.]

To these cases of pneumonia must be added one case of capillary bronchitis communicated by Dr. Lente. It occurred suddenly in a man seventy years old, and the dyspnœa was most urgent. Thirty grs. of calomel were given; relief speedily followed, and by the next morning the patient was out of danger.

Three cases of pulmonary congestion or œdema:

First, a case by Dr. Leaming. A patient with chronic pleuritic adhesions was seized suddenly with intense dyspnœa; soft, tearing râles were heard over both lungs, and percussion sound was dull and flat. Thirty grs. of calomel were given.

The next day the dyspnœa was gone, as also the râles, but the dullness to percussion remained.

Second, by Dr. Hudson. Sudden generalized pulmonary congestion, with impending asphyxia in a previously healthy, robust Irishman. In this case 30 grs. of calomel were given together with ⅛ gr. elaterium, and relief followed in two hours after purgation. Although it was in the interest of the patient, we must notice that the experiment of calomel was by no means pure.

Third case, also by Dr. Hudson. Pulmonary œdema occurred in a patient affected with chronic cardiac disease. A dose of 30 grs. of calomel was followed by removal of the dyspnœa and also of the fine subcrepitant râles, the physical sign of the œdema.

There are two cases of chronic pleuritic effusion, one complicating heart disease—one occurring in the course of a Bright's disease. In both the calomel was given in 30-gr. doses at the time that the thoracic effusion was so abundant as to cause distressing dyspnœa. In neither was any marked relief afforded by the medicine.

In a third case, also by Dr. Abbe, an acute pleurisy occurred in a man affected with aortic disease. The 30 grs. of calomel were followed by relief to the dyspnœa.

In a fourth case, fibrinous pleurisy and pericarditis were found at the autopsy of a case which, during life, had been diagnosed as meningitis. No dyspnœa occurred during the progress of the disease. The calomel was given on the seventh day, a blister applied to the neck and ice to the head. Patient died three days later. Brain was found normal, and it is intimated that the kidneys also were normal, but as this is not stated positively, it is permitted to suspect a renal cirrhosis, with pleurisy developed during the final uræmia.

One case of acute rheumatism is also recorded by Dr. Abbe. Endocarditis on eighth day, when 30 grs. calomel were given—this followed by disappearance of the murmur which had previously existed at both base and apex of heart.

A second case of rheumatic endocarditis is reported by Dr. Bayles. Pericarditis complicated the internal inflammation. The calomel was given for the relief of great dyspnœa and restlessness, and relief of these symptoms was obtained in an hour. The precise change effected in pulse or temperature is not recorded, nor the subsequent duration of the disease.

A third case of cardiac disease is reported by Dr. A. H. Smith, a case of chronic mitral regurgitation with Bright's disease. The calomel was given for excessive dyspnœa with orthopnœa, which had resisted digitalis, stimulants, and diuretics. The morning after the administration of the calomel the dyspnœa was greatly relieved.

A fourth case of cardiac disease is one of fatty degeneration, observed by Dr. Hudson, complicated on two occasions by pulmonary congestion, and both times entirely relieved by the "sedative dose" of calomel.

(*To be concluded.*)

Bibliographical and Literary Notes.

Art. I.—*Atlas of Diseases of the Membrana Tympani.* By H. Macnaughton Jones, M. D., M. Ch., F. R. C. S. I. and Edin., Surgeon to the Cork Ophthalmic and Aural Hospital, with Special Throat Department; Surgeon County and City of Cork Hospital for Diseases of Women and Children; Assistant Surgeon Cork South Infirmary and County Hospital; Late President of the South of Ireland Branch of the British Medical Association. Philadelphia: Lindsay & Blakiston, 1878.

This work consists of six plates and fifty-four figures of the healthy and diseased membrana tympani, and of two plates and nine figures of diseased states of the auricle.

The drawings, we are told in the preface, were made by a lady who devoted a great deal of care and study to their production under the author's care.

The delineations of the membrane are certainly very good, and cover a large field in otological work. While we do not think them so good as those produced by Hinton some years ago, in connection with his book, "Questions of Aural Surgery," nor as those of Politzer's in his work on the "Membrana Tympani," they are, nevertheless, artistically done. The lithographic execution of the plates, which are said to be the first done in Ireland, is excellent.

The atlas is intended to accompany the author's work on "Aural Surgery," and as an aid to the practitioner in diagnosing diseases of the ear. For this purpose we may commend it, but it ought not to take the place of the better works we have mentioned.

The first objection to atlases of this kind is their cost, and in this respect the book before us is less objectionable than Hinton's plates, the price of which would preclude any one but a specialist from having them.

The letterpress description of the plates is condensed from the author's treatise, and is quite sufficient to render the plates intelligible.

ART. II.—*The American Journal of Otology.* A Quarterly Journal of Physiological Acoustics and Aural Surgery. Edited by CLARENCE J. BLAKE, M. D., in conjunction with Professor A. M. MAYER, of Hoboken; Dr. ALBERT H. BUCK and Dr. SAMUEL SEXTON, of New York; Dr. C. H. BARNETT, of Philadelphia; Dr. J. ORNE GREEN, of Boston; and Dr. H. N. SPENCER, of St. Louis. New York: William Wood & Co. January, 1879.

THE increase of the interest in otology in this country during the past few years has been really remarkable. Besides the number of those who devote their practice exclusively to this department, we now have two journals of otology. The "Archives of Otology," which has existed for years in connection with the "Archives of Ophthalmology," is now edited as a separate journal. The other is the one which we now notice, the first number of which is before us.

It opens with original communications from the editor and three of his associates. All of them are articles of some value, although not of a very high order of merit. The only article of original study and research is that by Clarence Blake, on "The Graphic and Photographic Illustrations of Sound-Waves."

The others are purely clinical in character. Book notices and reviews make up the rest of the number. Three important works on diseases of the ear are very thoroughly and conscientiously reviewed. The abstracts from other journals are made with much care, and give a good review of the progress of otology.

We understand that all the first edition of this number has been exhausted, which argues well for its reception by the profession. While two journals on so small a specialty may seem to some superfluous, we think there is room for both, and are glad to welcome this new venture.

ART. III.—*A Treatise on Therapeutics, comprising Materia Medica and Toxicology, with Especial Reference to the Application of the Physiological Action of Drugs to Clinical Medicine.* By H. C. WOOD, Jr., M. D., Professor of Materia Medica and Therapeutics, and Clinical Professor of Diseases of the Nervous System in the University of Pennsylvania, etc. Third edition, revised and enlarged. Philadelphia: J. B. Lippincott & Co., 1879.

A WORK on therapeutics, dealing so largely with the physiological action of medicine as does that of Dr. Wood, is likely to need rather frequent revision. The author is plainly conscious of that necessity, and we can not too highly commend his faithful and indefatigable efforts to conform his work to the latest views and discoveries. The present edition follows the second at so brief an interval, that there are few new remedies to discuss, and the more important changes will be found in the discussions on drugs already well known and in general use. The chapters on jaborandi and salicylic acid have been entirely rewritten, and many others have been materially altered.

Dr. Wood has unquestionably rendered the profession an eminent service by his own zealous and continued labors and observations regarding the physiological action of drugs, and by his careful study and criticism of the results obtained by others.

ART. IV.—*Occlusion and Dilatation of Lymph Channels.* By SAMUEL C. BUSEY, M. D. 8vo, pp. 195.

THE pages of this interesting little volume are divided by the author into two chapters, both of which are reprints taken from "The New Orleans Medical and Surgical Journal," from November, 1876, to March, 1878. The first chapter of twenty-five pages takes up the "Anatomy and Histology of the Lymphatic System," with illustrations and quotations from many distinguished medical men. The chapter is quite good, and presents in small space the anatomy, etc., of the lymph channels. Chapter II., on the "Anomalies and Lesions of the Thoracic Duct," "Rupture of the Lacteals and of the Receptaculum Chyli," "Chylous Effusions into Serous Cavities," "Movements of the Lymph and Chyle, and Forces concerned in their Locomotion," "Pathological Considerations," is the best of the two chapters, and contains much readable matter. The author cites many cases which are very instructive.

ART. V.—*First Annual Report of the State Board of Health of the State of Connecticut for the Fiscal Year ending November 30, 1878.* 8vo, pp. 112.

THE first part of this pamphlet is devoted to proceedings, etc. Next in order we find the annual address as delivered by the president, JOHN S. BUTLER, M. D.; subject, "State Preventive Medicine." The address is quite lengthy, consisting of thirty-two pages, and is full of interest in relation to sanitary science. Article first, by Professor WILLIAM H. BREWER, is devoted to the "Pollution of Streams"; the second article, by Professor C. A. LINDSLEY, M. D., to the "Registration of Vital Statistics," and the third and last article, to "Epidemic, Endemic, and Contagious Diseases," by C. W. CHAMBERLAIN, M. D. The several subjects are well considered, especially the last, which is quite elaborate.

ART. VI.—*A Treatise on the Diseases of Infancy and Childhood.* By J. LEWIS SMITH, M. D., Clinical Professor of Diseases of Children in Bellevue Hospital Medical College, Physician to the New York Foundling Asylum, etc. Fourth edition, thoroughly revised, with illustrations. Philadelphia: Henry C. Lea, 1879.

FEW of the many works on diseases of children have attained the success and popularity enjoyed by that of Dr. J.

Lewis Smith, and the author has evidently determined that it shall not lose ground in the esteem of the profession for want of the latest knowledge on that important department of medicine. He has accordingly incorporated in the present edition the useful and practical results of the latest study and experience, both American and foreign, especially those bearing on therapeutics. New remedies and the new application of old ones are for the most part fully treated of, though we do not see in the index any reference to jaborandi. The prescriptions contained in the text have been so rewritten and modified as to render them more acceptable to the infant's palate. Altogether the book has been greatly improved, while it has not been greatly increased in size.

Art. VII.—*Report on Public Hygiene and State Medicine.* By F. W Hatch, M. D. Sacramento, 1878. 8vo, pp. 48.

This report, delivered before the Medical Society of the State of California by F. W. Hatch, M. D., is to those interested in sanitary science exceedingly valuable. There is probably no higher authority in the State of California, on hygiene, than Dr. Hatch. The author discusses briefly the question of contagion of many epidemic diseases, and claims the causation of said diseases to be, in the majority of cases, improper sanitary conditions.

Art. VIII.—*Spermatorrhœa: Its Causes, Symptoms, Results, and Treatment.* By Roberts Bartholow, A. M., M. D., Professor of the Theory and Practice of Medicine in the Medical College of Ohio, etc. Fourth edition, revised. New York: William Wood & Co., 1879. Pp. 128.

As this work is the recognized authority on the subject of spermatorrhœa, we are glad the distinguished author has found time to revise and recast a new edition of it. The treatise is too well known to require more than a passing notice.

Books and Pamphlets Received.—A Guide to the Qualitative and Quantitative Analysis of the Urine, designed for Physicians, Chemists, and

Pharmacists. By Dr. C. Neubauer, Professor, Chief of the Agricultural-Chemical Laboratory, and Docent in the Chemical Laboratory in Wiesbaden, and Dr. J. Vogel, Professor of Medicine in the University at Halle; with a preface by Professor Dr. R. Fresenius. Translated from the seventh enlarged and revised German edition by Elbridge G. Cutler, M. D., Physician to Out-patients at the Massachusetts General Hospital, etc. Revised by Edward S. Wood, M. D., Professor of Chemistry in the Medical School of Harvard University. New York: William Wood & Co. 1879. Pp. 552.

Proposed Legislation on the Adulteration of Food and Medicine. By Edward R. Squibb, of Brooklyn. Rough draft of a proposed law to prevent the adulteration of food and medicine, and to create a State Board of Health, with explanations and illustrations of the principal points of the law. Reprinted from "The Transactions of the Medical Society of the State of New York," for 1879. Notes in reply to criticisms by the Press. The British "Sales of Food and Drugs Act of 1875," with notices of some rulings of the British Court. New York: G. P. Putnam's Sons. 1879. Pp. 58.

Typhoid Fever; its Cause and Extent in Melbourne; based on the Report of an Inquiry made by Special Request of the Central Board of Health, and presented to both Houses of Parliament by his Excellency's Command. By William Thomson, F. R. C. S., author of "Phthisis, and the Supposed Influence of Climate in Australia," etc. Third edition, revised. George Robertson, Melbourne, Sydney, and Adelaide. 1878. Pp. 347.

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An Atlas of Human Anatomy, illustrating most of the Ordinary Dissections and many not usually practiced by the Student; accompanied by an Explanatory Text. By Rickman John Goodee, M. S., F. R. C. S., Assistant Surgeon to University College, Senior Demonstrator of Anatomy in University College. Philadelphia: Lindsay & Blakiston. 1878. Parts I. and II. Price $2.50 each.

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Pott's Disease; its Pathology and Mechanical Treatment; with Remarks on Lateral Curvature. By Newton M. Shaffer, M. D., Surgeon in Charge of the New York Orthopædic Dispensary, Orthopædic Surgeon to St. Luke's Hospital, New York. New York: G. P. Putnam's Sons. 1879. Pp. 82.

The Organic Constituents of Plants and Vegetable Substances, and their Chemical Analysis. By Dr. G. C. Wittstein. Authorized translation from the German original, enlarged with numerous additions, by Baron Ferd. von Mueller, C. M. G., M. and Ph. D., F. R. S. Melbourne: M'Carron, Bird & Co. 1878. Pp. 332.

Urethrismus, or Chronic Spasmodic Stricture. By F. N. Otis, M. D., Clinical Professor of Genito-Urinary Diseases in the College of Physicians and Surgeons, New York; Surgeon to Charity Hospital, Member of the British Medical Association, etc. Reprinted from "The Hospital Gazette," April 19, 1879.

On the Treatment of Pregnancy complicated with Cancerous Disease of the Genital Canal. By G. Ernest Herman, M. R. C. P., London; Assistant Obstetric Physician to the London Hospital. Read October 2, 1878. From Volume XX. of the "Transactions of the Obstetrical Society of London.

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Lectures on Electricity in its Relations to Medicine and Surgery. By A. D. Rockwell, A. M., M. D., Electro-Therapeutist to the New York Woman's Hospital, etc. New York: William Wood & Co. 1879. Pp. 99.

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Ophthalmia Neonatorum. By Richard H. Lewis, M. D. Reprint from the "North Carolina Medical Journal," March, 1879.

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Reports on the Progress of Medicine.

CONTRIBUTED BY DRS. E. FRANKEL, G. R. CUTTER, AND C. CLEVELAND.

SURGERY.

The Action of Anæsthetics.—Professor McKendrick, of the University of Glasgow, on behalf of a committee appointed to investigate this subject at the meeting of the British Medical Association, held at Manchester, 1877, makes a provisional report of which the following is an abstract: The committee adopted two lines of inquiry: first, to discover wherein the special dangers from chloroform lay; second, to see if some other anæsthetic could be found which would avoid these dangers.

They found in administering chloroform to dogs and rabbits that there was a disastrous effect on the regulatory centers, and it was very easy to cause death. It was also discovered that, even when failure of respiration was more directly the cause of death, the heart was to some extent simultaneously affected, and there were cases in which the heart failed as soon as, if not before, the breathing. As failure of the heart is often given as the cause of death from chloroform, they devised methods of experimenting, by which respiration could be eliminated and the effects upon the heart observed independently. Respiration is not necessary to the life of the frog as far as the heart is concerned. A frog was anæsthetized under an inverted jar, then removed, the heart cut down upon and exposed. The heart became rapidly weaker, till it stopped beating. In a similar experiment with ether, the exposed heart continued to beat vigorously as long as the experiment was continued. For warm-blooded animals they devised a method of artificial respiration. The animal was first anæsthetized. The trachea was then opened, a tube introduced, and artificial respiration begun by means of a double-acting pump. It was so arranged that any anæsthetic could be introduced into the circuit. The heart was then exposed. It was noted that chloroform at once had a serious effect upon the heart. The right ventricle would begin immediately to distend, and soon the heart would stop, with the right ventricle filled with blood. This result would often require but a minute. It was found that ether could be given indefinitely without interfering with the heart.

The great objection to ether is the tardiness of its action. It would therefore be desirable to find an anæsthetic that would be as potent as chloroform, yet affect the heart and respiration as little as ether. In testing various agents the methods above described were used. They were all administered in large doses intentionally. The following were the substances given: benzine, pyrrol, bichloride of methylene, amylene, butyl chloride, ethene dichloride, methyl chloride, ethyl chloride, nitrous ethyl ether, isotulyl chloride, and ethidine dichloride. It was found that all but the two last, isotulyl chloride and ethidine dichloride, were unsuitable, and these two are quite promising.

The experiments with isotulyl chloride were as follows: 1. With frogs. Under a glass jar complete anæsthesia occurred in about five minutes. The heart exposed was observed for thirty-five minutes, during which time it beat vigorously. 2. With rabbits. Given upon a cloth, anæthesia occurred in three to five minutes. Continued for half an hour after anæsthesia no interference with respiration appeared. 3. With dogs. Given in the same way, anæsthesia took place in four minutes. Continued for half an hour without effect upon respiration.

Ethidine dichloride: 1. Experiments on frogs. Given as before, anæsthesia occurred in from four to five minutes. The exposed heart continued beating slowly but regularly throughout the whole experiment, which lasted in one case twenty minutes and in another twenty-six. 2. Experiments on rabbits. Given as before, anæsthesia occurred within four minutes. In one case respiration stopped but soon recommenced. In experiments with artificial respiration and exposure of the heart, the contractions continued vigorous throughout. 3. Experiments on dogs. Anæsthesia in two to three minutes. In one case a large dog was kept fully anæsthetized for half an hour without the slightest failure of respiration or heart. Anæsthesia in this case was very rapid; recovery was rapid also. It was proved that a dog can live for a long time in a state of complete anæsthesia under ethidine dichloride, while he will die in a short time when given chloroform.

Mr. Bird, M. R. C. S. E. ("Medical Times and Gazette," January 18, 1879), gives his experience with ethidine dichloride in six cases. He found that the patients felt the effect almost immediately, and that the reflex phenomena remained longer than with either chloroform or methylene. In all at the commencement a strong heart stimulant had been applied. Only one vomited. He thinks it a good anæsthetic for children, as it is less rapid and disagreeable. He says he should not like to be the first to keep a patient under it for an hour and a half, as he has done with the bichloride of methylene, for fear the reaction would be too great, it is such a powerful heart stimulant. C. C.

Reduction of Strangulated Hernia with the Elastic Bandage.—Chapelle reports two cases of strangulated hernia, in which he accomplished reduction with Esmarch's apparatus. The first case was that of a laborer, 72 years of age, who had been afflicted with a left inguinal hernia since his fifty-seventh year. No truss had been worn, as the hernia rarely protruded, and then was always easily reducible. On September 6th, however, it protruded without previous exertion and could not be reduced, whereupon he entered the hospital. Immediately after admission, he was kept in a bath for one hour, and every possible means of reduction attempted, including iced applications and an enema. On the 8th of September, green vomiting set in, although his general condition was still satisfactory. The elastic bandage was then applied in the following way: The end was held at the symphysis pubis, then four or five turns passed under the left thigh, and then seven or eight circular turns made around the hips, and the whole secured with pins. In the course of an hour, the patient heard the characteristic gurgling and reduction of the hernia, which on examination was found to have taken place.

The second case occurred in a woman with a strangulated left femoral hernia. Here, also, all means save operation were tried ineffectually, and then compression resorted to. A graduated compress was covered by the elastic bandage in oval turns. It is advisable to apply a layer of wadding between the skin and the first turns of the bandage.—"L'Année Méd.," No. 4, 1878. G. R. C.

On Resection of the Ribs in Retro-Costal Abscesses.—The free incisions in cases of empyema, as first recommended by Roser, have not, in some cases, the desired result, as the ribs again approximate and close the opening. Resection of the rib has been suggested for such cases, and of late frequently performed. Besides securing free drainage to the purulent accumulation, this operation also contributes toward the healing of the abscess by permitting the thoracic wall to sink in somewhat, which is otherwise often prevented by the tough wall of the abscess. The following case is an illustration: The patient, 19 years of age, in his second year had acquired an empyema on the right side, which opened spontaneously and contained a darning-needle, concerning which no information was obtainable. A fistula remained, which was split when the child arrived at eleven years. Six years later the operation was repeated. When the author (Lossen) saw the patient, a small fistula was found between the closely approximated ribs. From each rib a portion, 2 cm. in length, was removed, and an abscess of the size of a fist opened. After two months, the ends of the ribs were again in such close apposition that a further resection was necessary to procure drainage. Then recovery took place with deep caving in of the resected end.—"Berlin. klin. Wochenschrift." E. F.

THEORY AND PRACTICE.

Hypodermic Use of Colchicine in Rheumatism.—The solubility of colchicine in water renders it very applicable for hypodermic use. Dr. Badia, a Spanish physician, has communicated a number of successful results of its employment in this way in chronic rheumatism, and these have induced Dr. Heyfelder, of St. Petersburg, to try it in a series of cases. The results were, on the whole, surprisingly gratifying. The remedy was tried in rheumatic joint affections, neuralgias of the same nature, and especially ischiagra. Two milligrammes were injected (in one gramme of water), and the action was often remarkable, the severe pain becoming much lessened, and the movability of the affected articulation being rendered much freer. In a case of chronic articular rheumatism of the lower extremity, which had existed for years, a surprising result was obtained by daily injections for ten days. There were freedom from pain and greatly increased motility, and, a relapse having occurred, a similar result was obtained by a single injection. In rheumatic ischiagra, the remedy had a very pronounced effect, in most of the cases, in relieving pain. The first result of the injection is a severe burning pain, which rarely lasts over half an hour. In about one third of the cases there was a local inflammatory reaction of varying degrees at the place of injection. In very few of the cases was there any considerable swelling or tenderness. Increased diuresis and strangury were noticed in a few cases. In persons with very sensitive skins it is advisable to use great caution, and to diminish the dose. Where local inflammatory phenomena are present, the remedy should be discontinued or applied at some distance.—"Berlin. kl. Wochenschr. and Hospitals-tidende," No. 26. G. R. C.

THERAPEUTICS.

Preservation of Powdered Ergot.—M. Merrut, pharmacist, has published the following in the "Journal de Thérapeutique." Many methods have been proposed for the preservation of ergot, though none of them are satisfactory; it was always necessary to pulverize the grains at the time they were to be used. Toward the end of 1874 we powdered 100 grammes of good and well-salted ergot. Half of this powder was placed in a dry bottle; the remainder, mingled with 5 per cent. of its weight of powdered benzoin, was placed in a vessel similar to the former. The two vessels, with the apertures simply closed with cardboards, were placed in a laboratory, that is to say, in a very variable atmosphere, sometimes dry, sometimes quite damp. After remaining fourteen months in this place, both bottles were examined. The benzoated powder appeared to possess all the physical properties of ergot, while in the other bottle nothing but a nauseous mass, in which there were immense numbers of living parasites, could be distinguished. The powder thus prepared has been successfully employed by several obstetricians. The antiseptic properties of benzoin may, therefore, be utilized for the preservation of powdered ergot without injuring its properties in the least. This method is especially useful to country practitioners, who are often at a distance from the pharmacist, as it enables them to always have at hand an active and unalterable agent, upon the action of which they can always rely.—"Journal des Sci. Méd. de Louvain," August, 1877. G. R. C.

PHYSIOLOGY.

The Source of the Cell Nucleus.—According to recent observations of Stricker, the nucleus of the white blood-corpuscles of the frog and triton is nothing else than an enclosed part of the movable cell body—a part, however, which can again become free and cease to exist as a sharply limited body in the center of the cell body by tearing, or by division of the capsule surrounding it. This capsule contains openings, or is permeable, so that the enclosed structure—the so-called nucleus—can send prolongations outward, and that portion of the cell outside the capsule, the cell body proper, can pass within the capsule. In the completely enclosed condition, that is, when the cell body has all moved within the capsule, many cell bodies appear to solidify, and the movements within the capsule to cease. In this manner the free nuclei of the older authors are produced. According to these observations of Stricker, the nuclei of the actively movable, fresh, colorless, blood-corpuscles of the frog and triton are not persistent, formed elements, as they have hitherto been regarded, but temporary encapsulated portions of the cell body. The free nucleus also, with its movable internal structure, is nothing but an enclosed cell body. The capsule itself is also nothing but a part of the cell body—a zone of the cell body in a certain chemical condition different from that of the rest of the cell. E. F.

Miscellany.

Appointments, Honors, etc.—Professor Roberts Bartholow, of Cincinnati, has been elected to the Chair of Materia Medica and Therapeutics in Jefferson Medical College, vacant by the death of Professor Biddle. Dr. H. C. Wood has been elected a member of the National Academy of Science. The late Dr. G. B. Wood has left large bequests to the Philadelphia College of Physicians, the University of Pennsylvania, and the American Philosophical Society. Dr. William S. Forbes has been elected Demonstrator of Anatomy in the Jefferson Medical College. Dr. H. D. Sands has been appointed Adjunct-Professor of Surgery in the College of Physicians and

Surgeons of New York. Dr. Thomas T. Sabine has been appointed Professor of Anatomy in the same school, and Dr. W. T. Bull, Assistant Demonstrator and Examiner in Anatomy. Dr. J. Williston Wright has been appointed Professor of Surgery in the Medical Department of the University of the City of New York. Dr. William M. Polk has been appointed Professor of Obstetrics and Diseases of Women and Children in the Medical Department of the same college. Dr. Edmund Andrews has been elected President of the Chicago Medical Society. Professor E. W. Jenks, of Detroit, has been appointed to the chair in the Chicago Medical College vacant by the resignation of Professor Byford. Professor Gross, of Philadelphia, has been elected President of the American Medical College Association for the ensuing year, Professor N. S. Davis, of Chicago, Vice-President, and Dr. Leartus Connor, of Detroit, Secretary and Treasurer.

Professor Brown-Séquard was recently given a dinner by the Creoles of the Mauritius resident in Paris, M. Laverdan officiating as chairman. Mr. George W. Callender, F. R. S., has just been appointed Examiner in Surgery in the University of London. John Eric Erichsen, F. R. S., is President of the Royal Medical and Chirurgical Society for the ensuing year. John Cockle, M. D., has been elected President of the Medical Society of London. The Paris Faculty of Medicine have unanimously recommended M. Brouardel for the chair of Legal Medicine, rendered vacant by the death of Professor Tardieu. M. Laboulbène has been recommended for the chair of History of Medicine, in place of Professor Parrot, who has been appointed to the chair of Diseases of Children.

The American Medical Association.—The thirteenth annual meeting was held in Atlanta, Georgia, May 6th to 9th, and was largely attended. We regret that we have not space to give an abstract of the admirable address of the President, Dr. Theophilus Parvin. The following officers were elected for the ensuing year: President, Lewis A. Sayre, M. D. Vice-Presidents: First, R. Beverly Cole, M. D., of California; Second, E. M. Hunt, M. D., of New Jersey; Third, H. O. Marcy, M. D., of Massachusetts; Fourth, F. P. Porcher, M. D., of South Carolina. Treasurer, Richard J. Dunglison, M. D., of Pennsylvania. Librarian, William Lee, M. D., of District of Columbia. Committee on Library, Johnson Eliot, M. D., of District of Columbia. Assistant Secretary, Walter R. Gillette. The next meeting will be held in this city on the first Tuesday in June, 1880.

The following committees were appointed: Committee of Arrangements—Dr. S. O. Vanderpoel, of New York, Chairman; Drs. Stephen Smith, William M. Polk, Robert F. Weir, Charles Inslee Pardee, A. A. Smith, and Thomas T. Sabine, of New York; Dr. Joseph C. Hutchison, of Brooklyn; Dr. M. H. Burton, of Troy, N. Y.; and Dr. E. H. Parker, of Poughkeepsie. Committee on Prize Essays—Drs. Austin Flint, Sen., A. C. Post, J. W. S. Gouley, and M. A. Pallen, of New York City; and J. C. Hutchison, of Brooklyn, N. Y. Committee on Publication—Drs. W. B. Atkinson, T. M. Drysdale, A. Fricke, S. D. Gross, Casper Wistar, R. J. Dunglison, of Pennsylvania; and Dr. William Lee, of District of Columbia.

The following are the Chairmen and Secretaries of Sections for 1880:

I. Practice of Medicine, Materia Medica, and Physiology—Dr. J. S. Lynch, of Maryland, Chairman; and Dr. W. C. Glasgow, of Missouri, Secretary.

II. Obstetrics and Diseases of Women and Children—Dr. Albert H. Smith, of Pennsylvania, Chairman; and Dr. Robert Battey, of Georgia, Secretary.

III. Surgery and Anatomy—Dr. W. T. Briggs, of Tennessee, Chairman; and Dr. J. Powell Adams, of Minnesota, Secretary.

IV. Medical Jurisprudence, Chemistry, and Psychology—Dr. James F. Hibbard, of Indiana, Chairman; and Dr. Thomas F. Wood, of North Carolina, Secretary.

Stevens Triennial Prize, 1882.—This prize, established by Alexander H. Stevens, M. D., amounts to two hundred dollars. The subjects for the next prize are as follows: I. Lesions of the brain, in connection with the two forms of diabetes. II. Diphtheria, in its relation to membranous croup.

The competing essays on either of the above subjects should give an account of our present knowledge, and also the results of personal investigation. They must be transmitted to the President of the College of Physicians and Surgeons, New York, on or before the first day of January, 1882. Each essay must be designated by a device or motto, and must be accompanied by a sealed envelope, bearing the same device or motto, and containing the name and address of the author. The envelope belonging to the successful essay will be opened, and the name of the author announced, at the annual commencement of the above-named college, in March, 1882. This prize is open for universal competition.

J. C. Dalton, M. D.,
Secretary of the Commission.

Local Anæsthesia by Congelation.—Dr. James Arnott, in the "Medical Times and Gazette," advises the more extensive use of local anæsthetics, and believes that in many cases the administration of anæsthetics by inhalation might thus be avoided. He claims that after congelation the tissues are in a condition incompatible with inflammatory changes, and he knows of no instance of erysipelas following the proper use of congelation. He much prefers the application of a mixture of ice and salt, in a muslin bag or otherwise, *with pressure*, to the ether spray, finding it more rapid and less painful. He uses in small operations a piece of ice repeatedly dipped in salt and applied to the part to be frozen. In other cases, a mixture of one part by weight of salt with two of crushed ice is recommended. The experience of Professor Gosselin, of Paris, is quoted, he having used a freezing mixture of equal parts of ice and salt in fifty-four cases of operation for evulsion of the toe-nail.

Death from Chloroform.—The "British Medical Journal" of March 29th reports a death from chloroform in Guy's Hospital. The patient was a woman, suffering from an abscess due to a pin which was lodged in the throat. Ether was given; but, as she took it badly, chloroform was substituted for it.

Medical Instruction in Russia.—The Imperial Academy of

Medicine and Surgery, of Russia, is to be devoted, henceforth, to the education of medical men for service in the army. It will be known as the Imperial Military Academy of Medicine. The number of students will be limited to five hundred, and they will be considered in the service of the State, receiving pay and allowance for equipment, besides free medical instruction. After leaving the school the State will claim eighteen months' service in the army for every year passed in the academy.

A New Anæsthetic.—The Paris correspondent of the "Lancet" gives some particulars of Professor Bert's new method of producing anæsthesia. A mixture of eighty-five parts of nitrous oxide and fifteen parts of oxygen was inhaled by a patient under increased atmospheric pressure. The experimenters were subject to the same pressure, but it was not sufficient to cause serious discomfort. In about fifteen seconds the patient was completely insensible and the muscles relaxed. Dr. Labbé then operated for ingrowing toe-nail, and the patient recovered consciousness in less than a minute after the anæsthetic was withdrawn. Under ordinary pressure, the mixture does not produce any anæsthetic effect.

Tartrate of Morphia.—Dr. John E. Stewart, in the "Edinburgh Medical Journal" for March, advises the use of tartrate of morphia as the best preparation of the alkaloid for hypodermic injection. It is a white powder, not unlike the hydrochlorate of morphia, forming a milky solution in cold water but a clear one in hot water, in the proportion of forty grains to the fluid ounce. It is claimed that the solution is perfectly unirritating, does not need filtering or neutralizing, and keeps fresh and unchanged for any length of time. It is recommended also for administration by the mouth.

Human Intestinal Juice.—Dr. Demant, of St. Petersburg, has ascertained, from experiments made on a patient suffering from fistula of the bowel near the junction of the small and large intestine, that the pure secretion, collected from the large intestine, is a clear, thin liquid, small in quantity, strongly alkaline, not affected by purgatives, incapable of digesting albumen, and having no action on any kind of protein. It converts starch and cane-sugar into grape-sugar; it emulsifies fats containing free acids, but leaves unaltered neutral fats in which the acids are combined with glycerine.

Correction of Report.—The specimen of sarcoma of the conjunctiva with amyloid degeneration, which was presented at a meeting of the Pathological Society, February 26, 1879, and reported in the April number of this journal, was by a mistake of the reporter attributed to Dr. C. S. Bull. The tumor was the property of Dr. J. S. Prout, of Brooklyn, who removed it from the eyelid, and it was through the Doctor's courtesy that Dr. Bull was enabled to present the specimen to the Society. A full description of the case will be found in Vol. viii., No. 1, of the "Archives of Ophthalmology."

Minto House Medical School.—The following lecturers have been appointed to the new Edinburgh school: Anatomy, Dr. Symington; Practice of Medicine, Dr. Wylie; Midwifery, Drs. Angus Macdonald and Halliday Croom; Surgery, Mr. Chiene; Pathology, Dr. Waller; Materia Medica, Dr. Craig; Skin Diseases, Dr. Jamison; Medical Jurisprudence, Dr. Aubrey Husband; Chemistry, Mr. J. F. King; Diseases of the Ear, Dr. K. Duncanson. The chairs of Physiology, Botany, and Natural History are not yet filled.

Association of American Medical Editors.—The eleventh annual meeting of this association was held in Augusta, Georgia, May 5th. The following officers were elected for the ensuing year: President, Dr. Thomas S. Powell, "Southern Medical Record," Atlanta, Ga.; Vice-President, Dr. Frank Woodbury (Philadelphia), "Boston Medical and Surgical Journal"; Secretary, Dr. Frank Davis, "Chicago Medical Journal." The next meeting will be held in this city.

Complimentary Dinner to Dr. Mann.—Dr. M. D. Mann was tendered a complimentary dinner at Delmonico's on the 23d ult., by a number of his professional friends, prior to his departure for Hartford, Conn., where he has taken up his residence, intending to devote himself to the practice of gynæcology, to which branch he has been devoting much attention for several years.

Railway Accidents in Great Britain.—The total number of persons whose lives were lost by accidents in connection with railways during the nine months ending September 30, 1878, is officially stated to be 797. Besides these, there were 4,452 persons injured. Of the killed, 377 were servants of companies.

The Sphygmograph.—Those interested in this comparatively recent instrument will find an excellent summary of what is at present known of its use and value in diagnosis, by Dr. T. A. McBride, in the "Archives of Medicine" for April, 1879.

Sixth Decennial Pharmacopœia Convention.—To the several incorporated State Medical Societies, the incorporated Medical Colleges, the incorporated Colleges of Physicians and Surgeons, and the incorporated Colleges of Pharmacy throughout the United States.

By virtue of authority devolved upon me as the last surviving officer of the Pharmacopœia Convention of 1870, I hereby call a General Convention to meet in Washington, D. C., on the first Wednesday in May, 1880, for the purpose of revising the Pharmacopœia of the United States.

For the information and guidance of all parties interested, I refer them to the rules adopted by the Convention of 1870, to be found on page 11 of the "Pharmacopœia of the United States," and request their compliance with the spirit and intention of the said rules.

James E. Morgan, M. D.,
No. 905 E Street, N. W., Washington, D. C.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from April 14 to May 13, 1879.

Sutherland, Charles, Colonel and Surgeon.—Granted leave of absence for five months, on surgeon's certificate of disability. S. O. 105, A. G. O., May 3, 1879.

McParlin, Thomas A., Major and Surgeon.—Relieved from duty in the Department of the East, and assigned to duty as Attending Surgeon in New York City. S. O. 111, A. G. O., May 10, 1879.

Sternberg, G. M., Major and Surgeon.—Relieved from duty in the Department of the Columbia, and to report in person to the Surgeon-General for temporary duty. S. O. 95, A. G. O., April 19, 1879.

Storrow, S. A., Major and Surgeon.—Granted leave of absence for one month. S. O. 38, Department of the Platte, May 5, 1879.

Janeway, J. H., Major and Surgeon.—Detailed as member of Retiring Board in session in New York City, vice Surgeon J. H. Bill, hereby relieved. S. O. 92, A. G. O., April 16, 1879.

Bartholf, J. H., Captain and Assistant Surgeon.—Relieved from duty at Alcatraz Island, Cal. Assigned to temporary duty as Post-Surgeon at San Diego Barracks, Cal. S. O. 44, Division of the Pacific, and Department of California, April 28, 1879.

O'Reilly, R. M., Captain and Assistant Surgeon.—Relieved from duty at Charleston, S. C. (post discontinued), and to accompany the Command to McPherson Barracks, Atlanta, Ga. S. O. 63, Department of the South, April 11, 1879.

Girard, J. B., Captain and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Fort Davis, Tex. S. O. 83, Department of Texas, April 21, 1879.

Elbrey, F. W., Captain and Assistant Surgeon.—Relieved from duty at Oglethorpe Barracks, Savannah, Ga. (post discontinued), and to accompany the Command to McPherson Barracks, Atlanta, Ga. S. O. 63, C. S., Department of the South; and granted leave of absence for six months on surgeon's certificate of disability. S. O. 89, A. G. O., April 12, 1879.

Hall, J. D., Captain and Assistant Surgeon.—Assigned to duty at Fort Griffin, Tex. S. O. 83, C. S., Department of Texas.

Woodruff, E., Captain and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Fort Stockton, Tex. S. O. 83, C. S., Department of Texas.

Winne, C. K., First Lieutenant and Assistant Surgeon.--Relieved from duty at Fort McPherson and assigned to duty at Fort Washakie, Wyo. T., S. O. 38, Department of the Platte, C. S.

Brown, P. R., First Lieutenant and Assistant Surgeon.—Relieved from duty at Fort Shaw and assigned to duty at Fort Bennett, D. T. S. O. 39, Department of Dakota, April 22, 1879.

Worthington, J. C., First Lieutenant and Assistant Surgeon.—To report by letter to the Medical Director of the Department for special duty. S. O. 50, Department of Arizona, April 23, 1879.

Merrill, J. C., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort Shaw, M. T., relieving Assistant Surgeon Brown. S. O. 39, Department of Dakota, April 22, 1879.

Perley, H. O., First Lieutenant and Assistant Surgeon.—Relieved from duty at Fort Pembina, to proceed to Bismarck, accompany the Eighteenth Infantry from there to Fort Assiniboine and take station at that post. S. O. 35, Department of Dakota, April 12, 1879.

POWELL, J. S., First Lieutenant and Assistant Surgeon.—When relieved by Assistant Surgeon Hall, to report at these headquarters for further orders. S. O. 83, C. S., Department of Texas.

BIART, V., First Lieutenant and Assistant Surgeon—Granted leave of absence for thirty days with permission to apply for an extension of thirty days on surgeon's certificate of disability. S. O. 88, Department of the Missouri, May 8, 1879.

RANDOLPH, J. F., Major and Surgeon.—Having been found by an Army Retiring Board incapacitated for active service, he is granted leave of absence until further orders, on account of disability, to take effect May 1, 1879. S. O. 108, A. G. O., May 7, 1879.

Obituary.

CHARLES MURCHISON, M. D., LL. D., F. R. S. It is with great regret that we chronicle the death of this distinguished gentleman, which occurred, from heart disease, the 23d of April. The "Medical Record" gives the following sketch of his life and work:

"Dr. Murchison graduated in medicine at Edinburgh in 1851, having, while a student, won many prizes and medals. His career since then has been so eventful with honors to himself, and noteworthy to the profession, from his contributions to its literature, that we can hardly chronicle everything. He finished his education in Italy and Paris, and then returned to Edinburgh for a time. In 1853 he went to India, and was soon appointed Professor of Chemistry in the Bengal Medical College. Returning to England he became, in 1855, Fellow of the College of Physicians, and later, Demonstrator of Anatomy and Lecturer on Botany at St. Mary's Hospital. During these years he wrote considerably on botanical subjects. In 1856 he began his pathological studies, and, although a man who was always careful and exact in his writings, he had soon contributed no less than three hundred and eleven papers to the London Pathological Society. These were based largely on the pathological collections at St. Mary's, and they added greatly to the prestige of the society and the hospital, as well as to his own reputation.

"In 1856 he was appointed assistant physician to King's College Hospital, and also to the London Fever Hospital, his connection with the latter institution resulting in his crowning work on "Continued Fevers." In 1860 he became lecturer on pathology at the Middlesex Hospital, and assistant physician at the same place. He was made physician to the London Fever Hospital in 1861.

"Resigning this he became physician and sole Lecturer on Medicine at Middlesex Hospital, in 1866. In 1870 he received the degree of LL. D. from Edinburgh University. In 1871 he became Lecturer on Medicine at St. Thomas's Hospital. In 1873 he was appointed Croonian Lecturer of the Royal College of Physicians, in which capacity he delivered his lectures on functional derangements of the liver. He subsequently became President of the Pathological Society, and one of his latest honors was his appointment as physician in ordinary to the Duke and Duchess of Connaught.

"During all these years his literary activity was extraordinary. Besides translating Frerichs's "Diseases of the Liver" and other foreign works, he was a frequent contributor to medical journals and transactions of societies. In 1862 he published his great work on "The Continued Fevers of Great Britain." In this he first made the unalterable distinctions between typhus and typhoid, and drew the ætiology and symptoms of the continued fevers with such exhaustive clearness as made him at once the authority above all others on the subject.

"We have had space to do little but catalogue a partial list of his achievements and give some indications of the amount of his work. But even this will show the talents and tremendous industry of the man.

"For the last nine years of his life he had been aware of a disease of the heart, but had continued his work, and died in the midst of it while attending to a patient."

Dr. Isaac Hays, who died April 12th, aged eighty-three years, was educated at the University of Pennsylvania, taking his A. M. in 1815, his M. D. in 1820. In February, 1827, Dr. Hays joined the editorial staff of the "Philadelphia Journal of the Medical and Physical Sciences," which in November was rebaptized as the "American Journal of the Medical Sciences." Dr. Hays became its sole editor, and for over half a century it remained under his control. In 1843 the "Medical News" was commenced as a monthly in connection with the Journal, and in 1874 the Journal was further supplemented by the issue of the "Monthly Abstract of Medical

Science," under the same editorial supervision. In 1828, Dr. Hays edited an edition of Wilson's "American Ornithology," 3 vols. 4to; in 1831 he published a translation, made in connection with the late Dr. Robert Egglesfield Griffith, of Broussais "On the Phlegmasiæ," 2 vols. 8vo.; in 1834 he edited the "American Cyclopædia of Practical Medicine and Surgery," 2 vols. 8vo., and was the author of a number of the articles contained in it; in 1846 he edited Hoblyn's "Dictionary of Medical Terms"; in 1848, Arnott's "Elements of Physics"; and in 1847, Lawrence's "Treatise on Diseases of the Eye," with numerous additions, which passed through three editions. He contributed to the "Proceedings of the Academy of Natural Sciences," and to the "Transactions of the American Philosophical Society," and he was also the author of a number of articles published at various times in the "American Journal of the Medical Sciences." Dr. Hays, in addition to his literary labors, always performed a fair proportion of practical work. He was almost the first person to attain eminence as an ophthalmologist in Philadelphia, and from the organization of Wills Hospital, in 1834, until his resignation, in 1854, was a very active member of its staff. In the various medical societies of Philadelphia Dr. Hays was an honored and active member; his urbanity, his unblemished reputation for the strictest impartiality, and his long experience, gave great weight to his opinions upon disputed ethical points and in personal difficulties between members of the profession. He was prominent in the organization of the American Medical Association and of the Pennsylvania State Medical Society. He was the first Treasurer of the Association, and chairman of its committee which framed and reported its Code of Ethics, which has since been adopted by every medical society in the Union, and is regarded abroad as a standard of professional conduct.—*Philadelphia Medical Times.*

Thomas J. Corson, M. D., at one time President of the New Jersey State Medical Society, died in Trenton, N. J., May 10th, aged fifty years.

Several obituary notices are unavoidably omitted.